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SECTION TWC

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GRAPHIC SURVEY

Radio and Radar Equipment

Used by the Army Air Forces

Instructors Reading this

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Communications Equipment

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Army Air Forces ★ Air Technical Service Command
Wright Field Dayton, Ohio

GRAPHIC SURVEY of Radio and Radar Equipment Used by the Army Air Forces

Classification Cancelled
OR Changed to CONFIDENTIAL

Auth: 6 June 1946

CG, ATSC

By J. J. Strganac
Cap. ac

[REDACTED]

BY AUTHORITY OF DIRECTOR, ATSC

1 March 1945

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Hobart R. Yeager
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Colonel, Air Corps

[REDACTED]

SECTION 2 - "COMMUNICATIONS EQUIPMENT"

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GRAPHIC SURVEY
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Present
Security
Classification

<u>Nomenclature</u>	<u>Description</u>	<u>Present Security Classification</u>
AN/AIA-1A	Glider Interphone Equipment	Unclassified
AN/AIC-1	Interphone Equipment	Unclassified
AN/AIC-2	Interphone Equipment	Unclassified
AN/AIC-3	Interphone Equipment	Unclassified
AN/ANQ-2	Recorder	Unclassified
AN/ARA-10	Control Assembly	Unclassified
AN/ARC-3	VHF Command Set (8 channel)	Unclassified
AN/ARC-6	Protected Communications Set	Unclassified
AN/ARC-7	VHF Glider Equipment	Unclassified
AN/ARC-9	Communications Receiver	Unclassified
AN/ARC-10	Radio Relay Equipment	Unclassified
AN/ARR-11	Radio Receiving Set	Unclassified
AN/ARR-13	Radio Receiver	Unclassified
AN/ART-13A	Auto-tune Transmitter	Unclassified
AN/ASA-3	Static Discharger	Unclassified
AN/CRC-1	Ground-Air Communications Set	Unclassified
AN/CRR-1	Radio Receiving Equipment	Unclassified
AN/GNQ-2	Recorder-Reproducer	Unclassified
HS-33	Headset	Unclassified
HS-38	Headset	Unclassified
ANB-M-C1	Microphone	Unclassified
M-1/A	Face Microphone	Unclassified
M-3/A	Lip Microphone	Unclassified
T-27	Hand Microphone	Unclassified
T-30	Throat Microphone	Unclassified
T-44	Magnetic Microphone	Unclassified
RC-26	Interphone Equipment	Unclassified
RC-27	Interphone Equipment	Unclassified
RC-35	Interphone Equipment	Unclassified
RC-36	Interphone Equipment	Unclassified
RC-45	Interphone Equipment	Unclassified
SCR-274N	Command Set	Unclassified
SCR-283	Command Set	Unclassified
SCR-287	Liaison Set	Unclassified
SCR-522	VHF Command Set	Unclassified
SCR-585	Glider Receiver-Transmitter	Unclassified
SCR-624	Air Transportable Command Set	Unclassified

Test Equipment

AN/AIM-1	Test Equipment	Unclassified
AN/ARM-1	Test Equipment (8 channels)	Unclassified
I-56	Tube Tester (Ground)	Unclassified
I-72	Signal Generator	Unclassified
I-77	Test Set	Unclassified
I-83	Dynamotor Test Set	Unclassified
I-139	Test Set	Unclassified
IE-12	Test Set (for SCR-522)	Unclassified
IE-19	Test Set (for SCR-522)	Unclassified
IE-36	Test Set	Unclassified
SCR-211	Frequency Meter	Unclassified
TS-164/AR	Frequency Meter	Unclassified

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Foreword

Purpose :

This Graphic Survey of Radio and Radar Equipment used by the Army Air Forces is intended to furnish authorized personnel with graphic and narrative data relative to description, electrical and physical characteristics, purpose, and tactical employment of the radio and radar equipment used by the Army Air Forces.

Restriction :

The Graphic Survey is not authorized as a basis for procurement storage, or issue, but is prepared only for information and guidance of research, development, procurement, storage, issue, and staff and planning activities.

Scope :

This publication is intended to cover all active equipment, both in use and in development. Publication is accomplished in a series of separate sections in order that reproduction and dissemination may be effected economically and expeditiously.

Format :

Permanent binder covers are not furnished with the various sections of the Graphic Survey, but the pages of each section are printed on 8 1/2 x 11 inch paper and punched for the standard AAF three-hole binder, (binder, loose-leaf, 3 post, stock number 8700-043800), commonly known within the AAF as "Technical Order Binder". With a few exceptions, data concerning each equipment is presented on two pages. The first page contains a description and information relative to use, installation, and electrical characteristics; the second page, photographs of the various components and physical weights and dimensions. Within each section, the equipments are arranged alphabetically by official nomenclature and type designation.

Suggestions :

Suggestions are invited for improvement of form, content, or to otherwise increase the ultimate utility to the user within the scope and purpose of this publication. Comments should be addressed to the Commanding General, Air Technical Service Command, Wright Field, Ohio, Attention: TSERR1B for consideration.

Security :

The Graphic Survey is classified "Secret" because of the broad scope of the equipment covered in each volume and the secret classification of many of the equipments. Each addressee will be responsible for maintaining the security of his copies in accordance with the provisions of AR 380-5. Security classification of each individual equipment at the time of publication will be indicated on the pages relative to that equipment.

Distribution :

Requests relative to distribution of this publication should be addressed to Commanding General, Air Technical Service Command, Attention: TSERR1B. Revisions and additions are forwarded periodically to original addressees in order that all copies may be kept up to date. Each copy has a serial number which is recorded on a master distribution file index.

Authority :

Preparation, publication and distribution of the Graphic Survey is accomplished in accordance with letter, Headquarters, AAF(AFDMA-2F), dated 5 April 1945, subject "Graphic Survey of Radio and Radar Equipment Used by the AAF". AAF report clearance number AAF-MD-E89 has been assigned.

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Section 2 Radio and Radar Communications Equipment

NOMENCLATURE	DESCRIPTION	TYPE	STATUS*
AN/AIA-1A	Glider Interphone Equipment	Standard	P
AN/AIC-1	Interphone Equipment		D
AN/AIC-2	Interphone Equipment	Standard	P
AN/AIC-3	Interphone Equipment	Limited Procurement	D
AN/ANQ-2	Recorder	Sub/Standard	P
AN/ARA-10	Control Assembly	Standard	P
AN/ARC-3	VHF Command Set(8 channel)	Standard	P
AN/ARC-6	Protected Communications Set		D
AN/ARC-7	VHF Glider Equipment		P
AN/ARC-9	Communications Receiver	Sub/Standard	P
AN/ARC-10	Radio Relay Equipment		D
AN/ARR-11	Radio Receiving Set	Standard	P
AN/ARR-13	Radio Receiver	Standard	P
AN/ART-13A	Auto-tune Transmitter	Standard	P
AN/ASA-3	Static Discharger	Standard	P
AN/CRC-1	Ground-Air Communications Set	Limited Standard	P
AN/CRR-1	Radio Receiving Equipment		P
AN/GNQ-2	Recorder-Reproducer	Standard	P
Headsets			
HS-33	Headset	Standard	P
HS-38	Headset	Standard	P
Microphones			
ANB-M-C1	Microphone	Standard	P
M-1/A	Face Microphone	Standard	P
M-3/A	Lip Microphone		D
T-17	Hand Microphone	Standard	P
T-30	Throat Microphone	Standard	P
T-44	Magnetic Microphone	Standard	P
RC-26	Interphone Equipment		P
RC-27	Interphone Equipment	Standard	P
RC-35	Interphone Equipment	Standard	P
RC-36	Interphone Equipment	Standard	P
RC-45	Interphone Equipment	Standard	P

RT-XA-17/AP	Microwave Receiver-Transmitter	<i>Unapped</i>	D
SCR-274N	Command Set	Standard	P
SCR-283	Command Set	Limited Standard	P
SCR-287	Liaison Set	Limited Standard	P
SCR-522	VHF Command Set	Sub/Standard	P
SCR-585	Glider Receiver-Transmitter	Limited Standard	P
SCR-624	Air Transportable Command Set	Standard	P
AN/AIM-1	Test Equipment	Standard	P
AN/ARM-1	Test Equipment(8 channels)	Standard	P
I-56	Tube Tester (Ground)	Standard	P
I-72	Signal Generator	Standard	P
I-77	Test Set	Standard	P
I-83	Dynamotor Test Set	Standard	P
I-139	Test Set	Standard	P
IE-12	Test Set (for SCR-522)	Standard	P
IE-19	Test Set (for SCR-522)	Standard	P
IE-36	Test Set	Standard	P
SCR-211	Frequency Meter	Standard	P
TS-164/AR	Frequency Meter	Standard	P

*Status Defined:

D - (DEVELOPMENT): Initial pilot run has not yet been completed.

P - (PRODUCTION): Initial pilot run has been completed, and quantity production is underway or has been completed.

Interphone Equipment AN/AIA-1A is accessory to the tow plane interphone system which provides interphone communication between a glider and tow plane. This equipment includes three major groups of components: Tow plane components; tow cable components, and glider components.

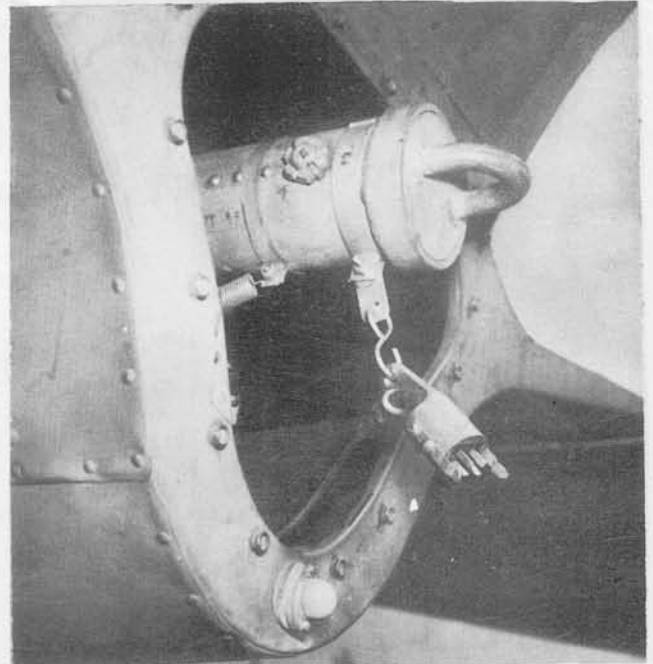
It is designed to work from tow plane interphone equipment of the type such as RC-36 and RC-45. The components used in the glider provide one outlet position for headset and microphone connection and includes one microphone and a maximum of three headsets, together with required extension cords.

Components used on the tow rope provide the necessary electrical conductors for the microphone and circuits. Components used in the tow plane provide a multi-circuit to a corresponding socket on the tow rope conductors and the interphone equipment wiring.

Test equipment required for maintenance includes AN/AIM-1.

Army Supply Program requirements as of 1 December 1944 were 7,978 glider components, 11,182 tow cable components and 10,536 tow plane components for the calendar year 1944.

POWER INPUT	GETS POWER FROM TOW PLANE
FREQUENCY	AUDIO
TYPE OF SIGNAL	VOICE



Installation photo showing tow plane connections for AIA-1A.



Installed in gliders, Interphone Equipment AN/AIA-1 enables personnel within the glider to communicate with the tow plane through the cord attached to the tow rope. Power is derived from the radio equipment of the tow plane. In newer tow ropes, the interphone cord is interwoven into the rope.

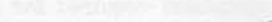
March 1945

AN/AIA-1A

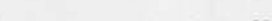
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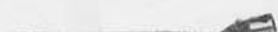
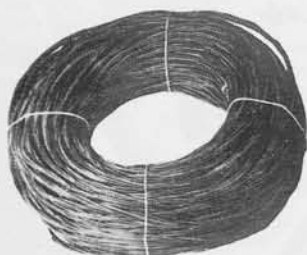
Glider Components



Components of 75 ft. Tow Rope Kit.



Components of 15 ft. Tow Rope Kit.



Components of 350 ft. Tow Rope Kit and Tool Kit.

INTERPHONE EQUIPMENT AN/AIA-1A

TOTAL WEIGHT 85 LBS.

Component

Nomenclature

Size

Weight

Kit for 350 feet tow rope

27 Lbs.

Kit for 75 feet tow rope

7 Lbs.

Kit for 15 feet tow rope

3 Lbs.

Glider components

3 Lbs.

Tow plane components

1 Lb.

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Interphone Equipment AN/AIC-1 is a multi-place interphone system, under development, in which will be incorporated the following facilities in addition to those available on standard interphone systems: More selector switch positions for the additional radio equipment; positive interphone channel operated by a single control, including all member of the crew, without interference from any other equipment; uninterrupted operation of certain radio equipment by certain members of the crew; positive separation of radio and interphone controls to reduce the possibility of inadvertent radio transmissions by pilots and gunners.

Selection of the following "A" box communications channels will permit transmitting and receiving on the channel selected: Interphone; Command; Radio Compass Special 1; Special 2. A special thru-position selector switch on the "B" box may be locked on any one of three Interphone position as, Interphone, Interphone--Radio 1; and Interphone--Radio 2.

The "B" box circuits are to be so designed that when the selector switch is locked in position, interphone signals may be received without passing through relay contacts within the box. To facilitate interphone operation, a push-to-talk switch may be mounted on the gun control handle at each gun position, and conveniently located at the engineer's station.

The interphone amplifier will provide satisfactory operation for as many as 15 headsets HS-33 at altitudes up to 40,000 feet. The speech input will be through one microphone, ANB-M-C1, or equivalent.

Test equipment required for maintenance will include general purpose test equipment, such as multimeters and tube testers.



Mounted conveniently on the gun Microphone Switch (press to talk) SA-26/U can be operated without interfering with gunner's other duties.

There were no Army Supply Program requirements for this equipment as of November 30, 1944.

FREQUENCY	AUDIO
TYPE OF SIGNAL	VOICE



Interphone Amplifier
AM-26/AIC



Switch Box
SA-XA-3/AIC-1



Remote Gain Control
C-97/AIC-2



Control Box
C-XA-40/AIC-1



Microphone Switch
SA-26/U



Control Box
C-XA-41/AIC-1

INTERPHONE EQUIPMENT AN/AIC-1

TOTAL WEIGHT 15 LBS

Component	Nomenclature	Size	Weight
Interphone Amplifier	AM-26/AIC	5" x 5" x 10"	8 Lbs.
Control Box	C-XA-40/AIC-1(XA-3)	3" x 4" x 5"	1 Lb.
Control Box	C-XA-41/AIC-1(XA-3)	2" x 4" x 5"	1 Lb.
Switch Box	SA-XA-3/AIC-1(XA-3)	2" x 4" x 5"	1 Lb.
Remote Gain Control	C-97/AIC-2	3" x 3" x 2"	1 Lb.

Interphone Equipment AN/AIC-2, an airborne multiplace interphone system operating on 24 volts d.c., is designed for use in medium and heavy bombardment aircraft. It provides for interphone communication between crew positions and switching facilities for partial control of three radio sets and one additional radio receiver. Interphone Amplifier AM-26/AIC provides adjustable gain control and power output levels adequate for operation of as many as 15 headsets at altitudes up to 40,000 feet.

Based on extensive laboratory and flight tests, it was determined that for an interphone amplifier to be used at 35,000 feet in conjunction with a carbon oxygen mask Microphone ANB-M-C1 and a low impedance Headset HS-38, the over-all voltage gain should be approximately 30 db for the best articulation results. Furthermore, with this gain provided, it was found that the amplifier should have a power output capability of at least 200 milliwatts per headset to prevent distortion of speech peaks.

As a result of these tests, AM-26/AIC was designed to provide sufficient gain and power output to compensate for these natural losses in the levels of speech, thereby increasing the ease and intelligibility of interphone communications at high altitudes. The new amplifier has a power output up to 4 watts and an increase in voltage gain of 16 db over that of Interphone Amplifier BC-347-C. It is provided with an initial gain of approximately 16 db, and provision for obtaining 16 db. additional gain in three steps, each step corresponding roughly to the gain required for the different altitudes. The settings on the gain control is left to the discretion of the crew but the suggested settings of the gain control switch for various altitudes are given on the amplifier.

AM-26/AIC is being introduced in medium and heavy bombardment type aircraft as part of Interphone Equipment AN/AIC-2 to replace Interphone Equipment RC-36. In addition to the new amplifier, the AN/AIC-2 equipment includes Microphone Switch SA-26/U, which mounts on machine guns and other convenient parts of equipment that are used by the navigator, radio operator, etc.

Interphone Amplifier AM-26A/AIC is the same as AM-26/AIC except that it contains Automatic Gain Control C-158/AIC and incorporates several minor mechanical and electrical changes.

Test equipment required for maintenance includes general purpose test equipment such as multimeters and tube testers.

Army Supply Program requirements as of 26 December 1944 were for 39,567 for the calendar year 1944, and 20,306 for 1945.

POWER INPUT	30 WATTS @ 28 VOLTS D.C.
POWER OUTPUT	AM-26/AIC 4 WATTS MAX.
FREQUENCY	AUDIO
TYPE OF SIGNAL	VOICE

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	12J5GT	2	12A6



Microphone Switch
SA-26/U

Remote Gain Control
C-97/AIC-2

Interphone Amplifier AM-26/AIC

Jack Box
BC-1366

INTERPHONE EQUIPMENT AN/AIC-2

TOTAL WEIGHT 22 LBS.

Component	Nomenclature	Size	Weight
Interphone Amplifier	AM-26/AIC	5" x 5" x 10"	8 Lbs.
Mounting	MT-28/ARN-5	2" x 5" x 10"	2 Lbs.
Remote Gain Control	C-97/AIC-2	3" x 3" x 2"	1 Lb.
Jack Box	BC-1366 (10 each)	5" x 4" x 3"	1 Lb.
Microphone Switch	SA-26/U (5 each)	3" x 1" diam.	1 Lb.
Dynamotor	DM-32-A	5" x 3" x 3" (mounted on AM-26/AIC)	3 Lbs.

and includes plugs, cordage and jacks.

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AN/AIC-3

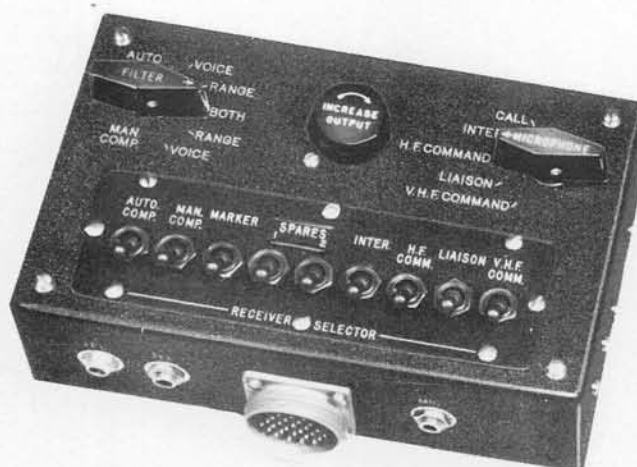
Interphone Equipment AN/AIC-3 is an inter-communication system designed to be used in transport Army Aircraft. This equipment provides intercommunication between any number of positions up to a maximum of five, and permits the mixing of the audio output of any combination of several facilities including HF and VHF command receivers, liaison receiver, automatic radio compass receiver, auxiliary radio compass receiver and marker beacon receiver.

Test equipment required for the maintenance of the set includes Tube Tester I-177 and a Volt ohmmeter such as Multimeter TS-297/U.

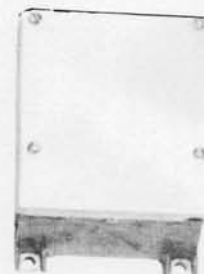
Army Supply Program requirements as of 26 December 1944 were 3,530 for the calendar year 1944 and 3,826 for 1945.

POWER INPUT	28 VOLT D.C.
TYPE OF SIGNAL	AUDIO

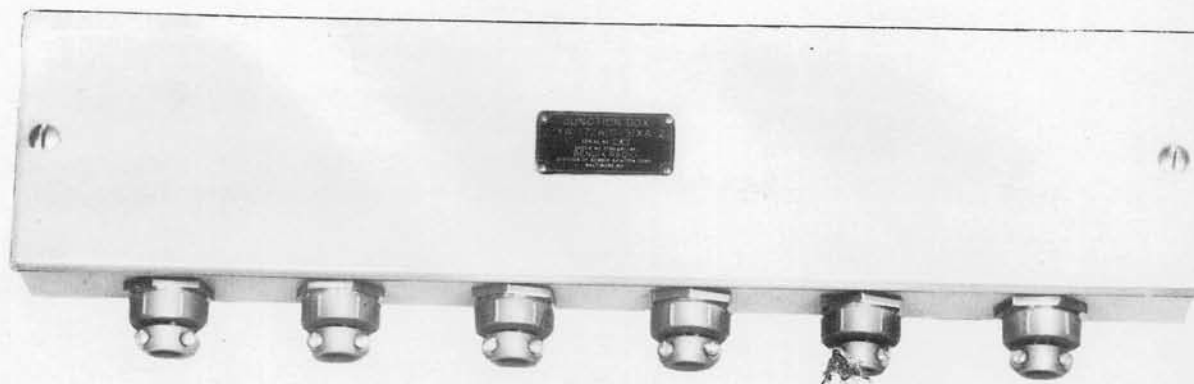
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	28D7		



Control Box C-166/AIC-3



Filter F-21/ARA-9



Junction Box J-XA-17/AIC-3

INTERPHONE EQUIPMENT AN/AIC-3

TOTAL WEIGHT 15 LBS.

Component	Nomenclature	Size	Weight
Control Box	C-166/AIC-3	9" x 6" x 3"	4 Lbs.
Junction Box	J-90/AIC-3	21" x 5" x 3"	3 Lbs.
Filter	F-21/ARA-9	3" x 3" x 3"	2 Lbs.

and includes plugs, cordage, and jacks.

March 1945

Recorder AN/ANQ-2 is an airborne recorder which records voice and radio signals by embossing on a plastic disk. Its associated ground equipment, Recorder-Reproducer AN/GNQ-2, records in a similar manner and provides playback by means of a pickup, amplifier and loud speaker.

Recordings are made by embossing on a cellulose acetate disk with a special wax surface treatment. The disk is 0.010 inches thick by 7 inches in diameter. The disk is driven by an off-center pin which engages a hole in the disk and one of a series of corresponding off-center holes in the turntable. The drive pin is mounted on a spring-loaded record clamp which holds the disk on the turntable. The embossing stylus consists of a sapphire point (tip radius 0.0015") on an aluminum alloy shank 3/4 inch long by 0.063 inch in diameter. Turntable speed is 11.75 r.p.m., line spacing 210 lines per inch, and recording time 30 minutes on each side of the disk. The outer and inner groove radii are 3.38 and 1.70 inches, respectively, and the corresponding groove speeds are 4.2 inches/second and 2.1 inches/second.

The magnetic recording head is mounted on a short counterbalanced arm which is pivoted at its center of gravity. The recording head arm is spring-loaded, and the vertical force at the stylus is approximately 5 ounces. The recording head carriage is driven by an overhead feed mechanism of conventional design.

The turntable is driven by a rubber-rimmed idler which engages the bottom surface of the turntable. The idler is driven by a knurled drive wheel which is driven through a flexible coupling, by a gear reduction box built into the motor. The motor is a 28 volt series motor (shaft speed 4100 r.p.m.) with a Lee governor mounted directly on the shaft.

The turntable consists of two halves joined by a sponge rubber pad. The upper half is supported on a stainless steel shaft which rests in a journal assembly consisting

of two oilite sleeve bearings and a single ball bearing at the bottom.

The control box provides remote operation for the recorder. The operator's microphone and headset are plugged into the control box, and the control box is wired to the operator's interphone jack box and to Recorder Unit RD-6/ANQ-2. Terminals are also available in the control box for connection to the output of a radio receiver not wired into the airplane interphone system.

A five position switch allows the operator to select one of the following types of recorder operation: Interphone; Microphone; Off; Record Radio; Monitor Radio.

For all ordinary uses of AN/ANQ-2, only the first three positions (i.e., Interphone, Microphone, and off) are needed, and that the operator is connected to the interphone system in each of these positions. The last two positions (i.e., Record Radio and Monitor Radio) are intended for certain specialized applications, and the operator is completely disconnected from the airplane interphone system in these two positions.

The equipment operates at a nominal voltage of 115 volts, 60 cycles per second and draws 0.5 ampere when the motor is running. Standby current is 0.2 ampere.

Army Supply Program requirements as of 31 July 1944 were for 270 equipments for the calendar year 1944.

POWER INPUT	28 VOLTS D.C.
FREQUENCY	AUDIO
TYPE OF SIGNAL	VOICE
RECORDING TIME	30 MINUTES (One side)
TURNTABLE SPEED	11.75 R.P.M.
FREQUENCY RESPONSE	400 TO 2500 CYCLES PER SECOND WITHIN +3 DB and -6 DB
SIGNAL TO NOISE RATIO	40 DB at 1000 C.P.S.
LINE SPACING	210 LINES PER INCH



Recorder Unit RD-6/ANQ-2

RECORDER AN/ANQ-2

TOTAL WEIGHT 27 LBS.

Component	Nomenclature	Size	Weight
Recorder Unit	RD-6/ANQ-2		20 Lbs.
Mounting	MT-199/ANQ-2		5 Lbs.
Control Box	C-99/ANQ-2		2 Lbs.
Mounting	MT-200/ANQ-2		

and includes plugs and adapters.

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AN/ARA-10

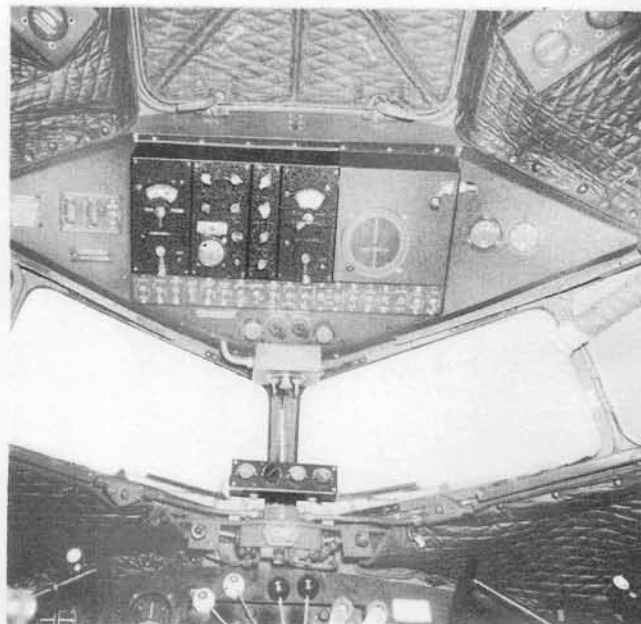
Control Assembly AN/ARA-10 is an airborne auxiliary assembly combining all radio communications and navigation control functions of the pilot-operated radio equipment in ATC airplanes. These functions are performed by five control panels (Control Panels C-177/ARA-10, C-178/ARA-10, C-179/ARA-10, C-180/ARA-10, and C-181/ARA-10) and the associated junction box (Junction Box J-89/ARA-10).

With the increasing number of aircraft being assigned to Air Transport Command and the increasing variety of radio and radio-navigational equipment becoming available for installation in aircraft, a standard complement of radio equipment for heavy transports became necessary.

Present standard equipment complement for heavy transports is: Transmitting Set AN/ART-13, Radio Set AN/ARC-9, Radio Compass AN/ARN-11, AN/ARN-7, Radio Receiving Equipment RC-103, AN/ARN-5, AN/ARN-8, Radio Set AN/APN-1, Static Discharger Assembly AN/ASA-1, Radio Set AN/APN-4, and Interphone Equipment AN/AIC-3.

A consolidated radio control panel was developed to meet the requirements, incorporating in one unit all of the radio controls which must be available to the pilot and co-pilot of heavy transports. In the C-46 and C-87 aircraft it is mounted overhead on the ceiling of the cockpit; and separate small panels are provided, one containing the sensitivity controls for the AN/ARN-7 and AN/ARN-11, the other containing the meter sensitivity control for the AN/ARN-11 and the volume control for the AN/ARC-9. These small panels are mounted on the pedestal for maximum accessibility.

The main panel is constructed in four sections of identical dimensions, connected to the aircraft wiring by means of locknut terminal strips. It is thus possible to arrange the four sections in any manner best suited to the particular aircraft installation. Approximate dimensions of the main panel are 17 inches long by 8 inches wide by 4 inches deep, and the small panels are 4 inches long by 2 inches wide by 3 inches deep.



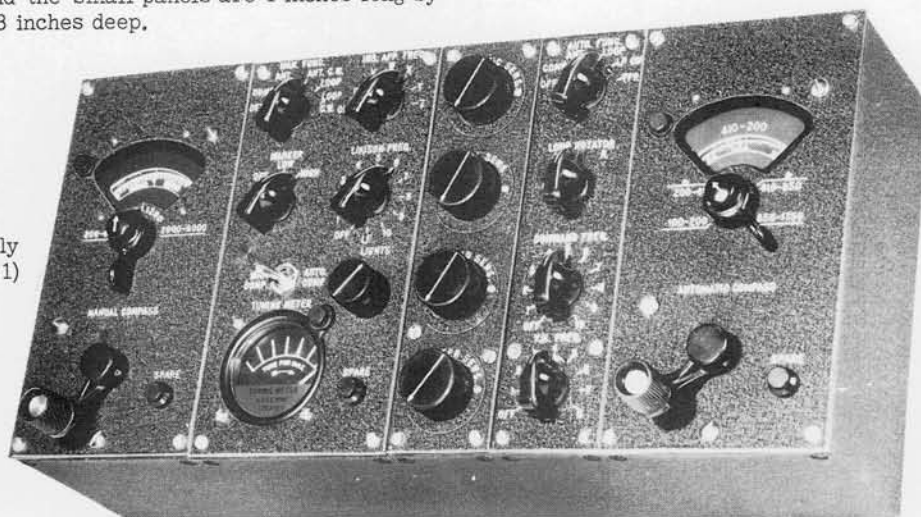
Installation of Control Assembly AN/ARA - 10 Pilot's Position C-48-A.

Present estimates indicate that aircraft produced during February 1945 should contain this installation.

No special test equipment is required for maintenance.

Army Supply Program requirements as of 26 December 1944 were 2,000 for the calendar year 1944 and 2,334 for 1945.

Control Assembly
AN/ARA-10(XA-1)



CONTROL ASSEMBLY AN/ARA-10

TOTAL WEIGHT 50 LBS.

Component	Nomenclature	Size	Weight
Control Panel	C-177/ARA-10	8" x 5" x 4"	4 Lbs.
Control Panel	C-178/ARA-10	8" x 5" x 4"	4 Lbs.
Control Panel	C-179/ARA-10	8" x 3" x 4"	2 Lbs.
Control Panel	C-180/ARA-10	8" x 3" x 4"	2 Lbs.
Control Panel	C-181/ARA-10	8" x 5" x 4"	4 Lbs.
Junction Box	J-89/ARA-10	53" x 5" x 1"	27 Lbs.

and includes set of installation components

March 1945

RadioSet AN/ARC-3 is an eight channel, crystal-controlled, command set operating over the frequency range of 100 to 156 mc. Major components are a transmitter, receiver, control box and power junction box. Components have form of factors comparable to twice the size of similar components of RadioSet SCR-274-N and are capable of being installed on the mountings of the SCR-274-N.

All of the operating functions of the set are remotely controlled. The only operation required to change the frequency of a particular channel is to insert the crystal units in the transmitter and receiver and roughly setting a dial on the receiver to the carrier frequency. Crystal units and their harmonic relations are identical with those used in RadioSet SCR-522. Access is provided to a terminal in the receiver socket so that a localizer may be used as an auxiliary piece of equipment. Access is also provided to the terminals in the receiver socket that the audio output of an auxiliary receiver or any other equipment may be fed through the fixed audio amplifier stage.

Operating from a 28 volt d.c. nominal primary power source, the equipment transmits voice amplitude modulated signals with tone transmission on any channel.

Designed to receive amplitude modulated signals only because of its low frequency response, the receiver is satisfactory for use in flying CAA localizer courses and ranges, if the receiver is provided with the proper crystals and external filters and indicators.

This set is intended for use on all initial installations in place of SCR-522 in heavy, very heavy, medium, and light bombers, one and two-engine fighters, photographic airplanes, heavy and medium transports.

AN/ARC-3 presents advantages over VHF components of the SCR-274-N in that high altitude limit is increased from 30,000 feet to 50,000 feet and production is simplified.

Include more simple design, saving of weight,

increase to eight channels, simplification of setting-up channels, and automatic modulation control.

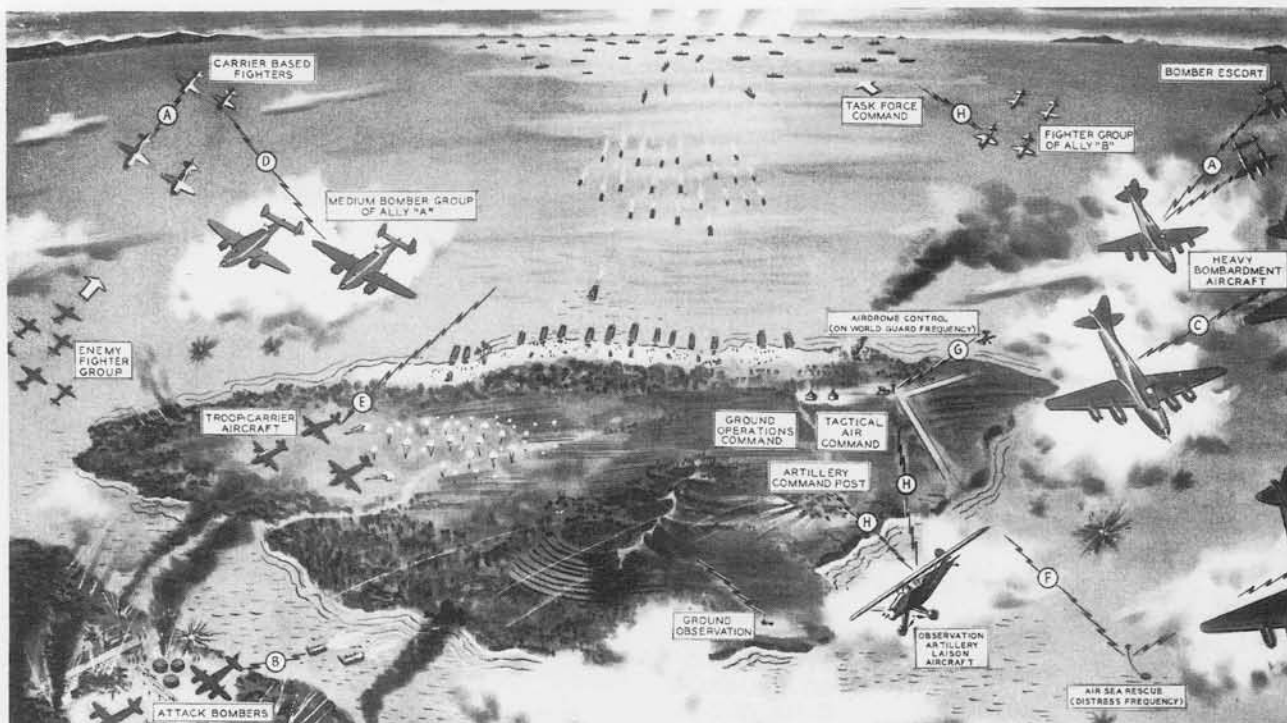
Because the AN/ARC-3 has eight channels available, this equipment has a superior anti-jamming feature when compared to the SCR-522 with its four channels. Quantity production of this equipment started in December 1944.

Test equipment required for the maintenance and tuning of the set includes; Test Set AN/ARM-1 and Phantom Transmitter Antenna TS-78.

Army Supply Program requirements as of 1 December 1944 were 50,000 for the calendar year 1945.

POWER INPUT	28 VOLTS DC
POWER OUTPUT	1 WATT (peak) RECEIVER 15 WATTS (peak) TRANSMITTER
FREQUENCY	100-156 MC
TYPE OF SIGNAL	RECEIVER TRANSMITTER AM: MCW
SENSITIVITY	5 MICROVOLTS
SELECTIVITY	100 KC AT 2X INPUT
RANGE	100 MILES AT 10,000 FT. ALTITUDE 200 MILES AT 25,000 FT. ALTITUDE

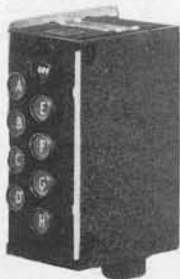
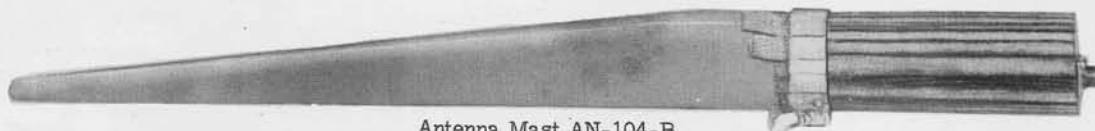
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6L6	1	9002
3	6V6/GT	3	12SG7
2	832A	2	12SN7GT
2	12SH7	1	12SN7GT
1	6J5	1	12H6
6	6AK5	1	12A6GT
1	9001		



With eight remotely controlled channels, Radio Set AN/ARC-3 permits intercommunication between all elements of a tactical air force, definite assignment of a channel to each element and effective coordination of ground and air forces. Separate operating channels may be assigned to each element or function, as illustrated: (A) Fighters; (B) Fighter-Bombers; (C) Heavy Bombers; (D) Medium Bombers; (E) Troop Carriers; (F) Air-Sea Rescue; (G) "World Guard"; (H) Observation and other aircraft.



Radio Transmitter T-67/ARC-3

Radio Receiver
R-77/ARC-3Control Box
C-118/ARC-3Dynamotor Unit
DY-22/ARC-3Dynamotor Unit
DY-21/ARC-3Power Junction Box
J-68/ARC-3

Antenna Mast AN-104-B

RADIO SET AN/ARC-3

TOTAL WEIGHT 85 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	T-67/ARC-3	8" x 13" x 15"	19 Lbs.
Mounting Base	MT-238/ARC-3		
Radio Receiver	R-77/ARC-3	6" x 1" x 16"	18 Lbs.
Mounting Base	MT-237/ARC-3		
Power Junction Box	J-68/ARC-3	4" x 9" x 10"	7 Lbs.
Dynamotor Unit	DY-21/ARC-3	4" x 4" x 8"	9 Lbs.
Dynamotor Unit	DY-22/ARC-3	4" x 4" x 8"	5 Lbs.
Mounting Base	MT-236/ARC-3		
Control Box	C-118/ARC-3	6" x 2 1/2" x 6 1/2"	2 Lbs.
Mounting	FT-240-A		
Antenna Mast	AN-104-A		
Control Unit	C-197/ARC-3		3 Lbs.

and includes plugs, adapter and RF cable.

~~SECRET~~

AN/ARC-6

Radio Set AN/ARC-6 (PREP) is an Ultra High Frequency Command Set now under development, providing line-of-sight communication of voice only, by means of pulse-modulated waves between aircraft and between aircraft and ground stations. The set consists of a combined U.H.F. Transmitter-Receiver with dynamotor mounted in a single standard shock absorbing ANB mounting, and a control box which enables push button selection of eight preset channels which may be any of 33 channels within its frequency range of 225-285 megacycles. Switches for manual control of the set are located on the control box, which is mounted on Mounting FT-240-A.

The equipment operates on an input voltage of 28 volt D.C. and has an average power output of 4 to 6 watts into a 50 ohm resistance load. Side-tone feature is available.

Anti-jamming feature of the set is highly developed. The equipment is a narrow band system necessitating the use of relatively slow speeds of transmission. It utilizes a printer mechanism in conjunction with other apparatus.

This equipment was designed, not to replace existing communication equipment in the aircraft, but merely

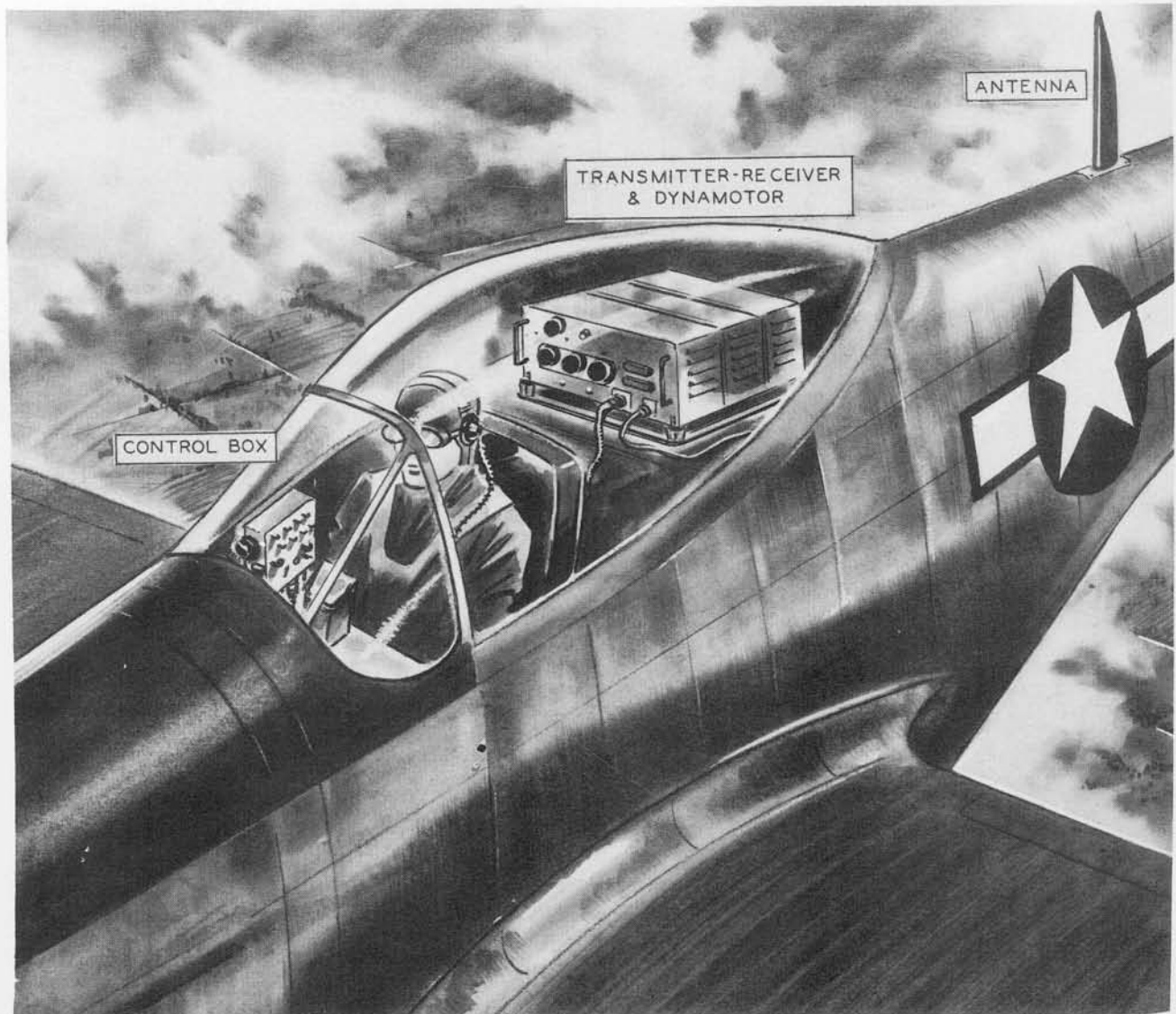
to supplement the present equipment.

Test equipment required for maintenance includes Oscilloscope Unit TS-XA-49/ARC-6(XA-1) and Oscilloscope Unit TS-XA-23/ARC-6(XA-1).

There were no Army Supply Program requirements as of 30 November 1944.

POWER SOURCE	28 VOLTS D.C.
POWER OUTPUT	4 TO 6 WATTS AVERAGE
FREQUENCY	225 - 285 MC
TYPE OF SIGNAL	VOICE

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
3	6AC7	1	12SJ7
2	6AG5	2	12SL7GT
1	6J6	2	829B
5	12A6	2	832A
2	12H6	1	OC3/VR-105
10	12SH7		



Radio Set AN/ARC-6 is a ultra high frequency command set which provides push button selection of 8 preset channels which may be any of 33 channels within its frequency range of 255-285 Mc.

March 1945

~~UNCLASSIFIED~~

CONFIDENTIAL

AN/ARC-7

Radio Set AN/ARC-7 is a single channel VHF receiver and transmitter to be installed in gliders for communication with tow planes and with ground stations. It is designed to be operable on any frequency in the frequency range of Radio Set SCR-522 (100 to 156 Mc.). It is capable of five hours continuous operation, assuming 5 per cent transmitting time, without recharging the glider battery, and it is also capable of operation over a distance of 30 miles, air-ground, from an altitude of 1,000 feet, when used in conjunction with Radio Set SCR-624.

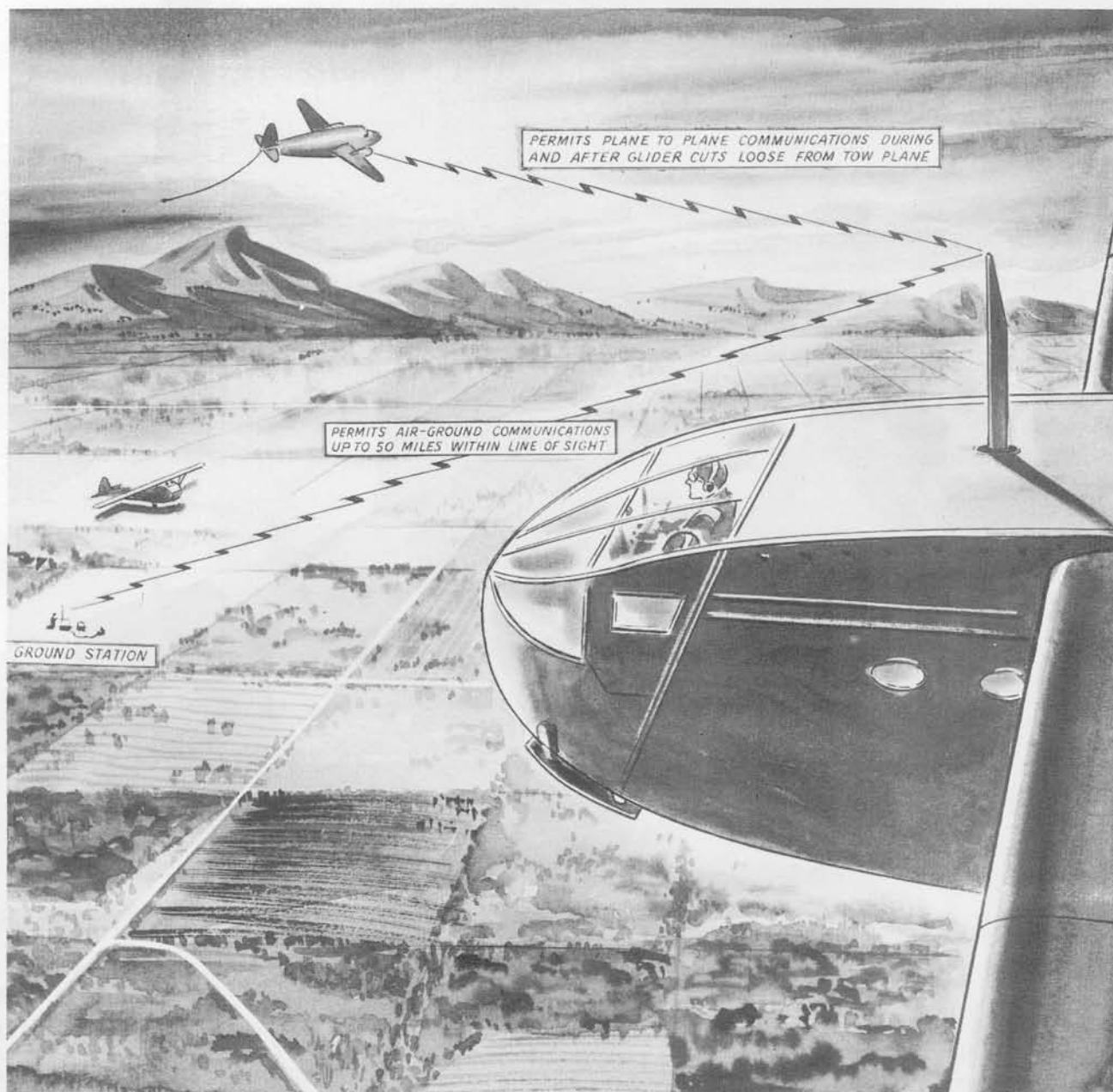
As a possibility exists that the receiver component of the set, if it is proved satisfactory, may be used separately as a ground receiver with Radio Set SCR-522, the receiver is built as a separate unit, containing its own power supply.

Test equipment for the maintenance and tuning of the radio set includes Test Equipment IE-19, Test Equipment IE-36 and Phantom Antenna TS-273/U.

There were no Army Supply Program requirements as of 1-December 1944.

POWER INPUT	24 VOLTS D.C.
POWER OUTPUT	0.5 WATTS
FREQUENCY	100-156 MC.
TYPE OF SIGNAL	CW; MCW; VOICE
RANGE	AIR TO GROUND- 120 MILES AT 10,000 FEET

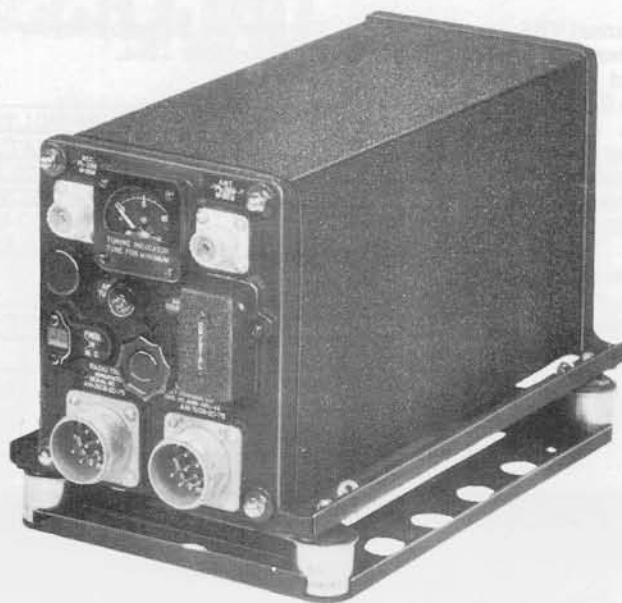
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
4	9003	5	6AQ6
9	6AK5	4	6AK6
1	12H6	1	1629



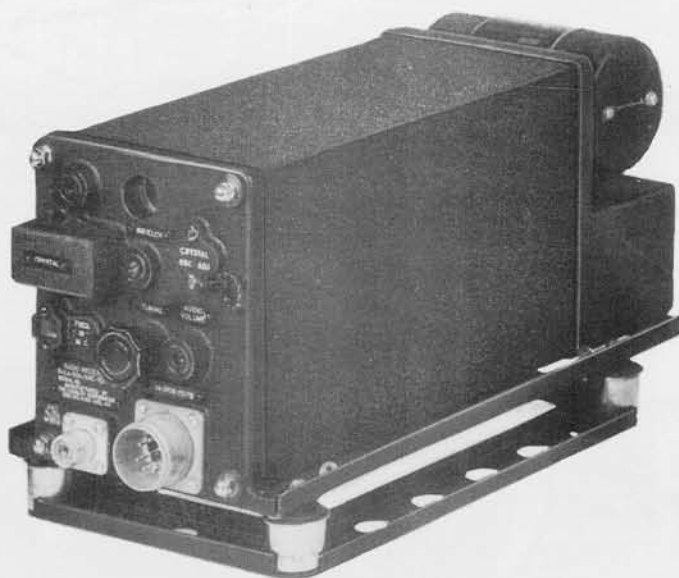
Installed in gliders, Radio Set AN/ARC-7 enables the glider pilot to communicate with tow planes other gliders and temporary ground stations.

March 1945

UNCLASSIFIED



Radio Transmitter



Radio Receiver



Antenna Mast



Control Box

RADIO SET AN/ARC-7

TOTAL WEIGHT 25 LBS.

Component	Nomenclature	Size	Weight
Antenna Mast	AN-104	32" x 3" x 1"	3 Lbs.
Radio Transmitter	T-XA-28A/ARC-7(XA-2)	7" x 12" x 7"	15 Lbs.
Radio Receiver	R-XA-30A/ARC-7(XA-2)	14" x 7" x 7"	5 Lbs.
Control Box	C-XA-48A/ARC-7(XA-2)	3" x 3" x 2"	1 Lbs.

and includes cables, plugs and adapters.

Radio Set AN/ARC-9 is a high power, multi-channel, quick shift pilot operated transmitter-receiver for installation in aircraft operating under Air Transport Command on regular route. It makes possible elimination of the liaison set and the radio operator on some routes and will permit the pilot to establish voice contact over long ranges on all routes. This combines transmitter-receiver operation on any ten pre-determined crystal controlled channels within the frequency range of 2500-13000 kilocycles.

Radio Set AN/ARC-9X is similar to AN/ARC-9 except for input voltage. The former operates from a 12/24 volts D.C. and the latter from a 24 volt D.C. source.

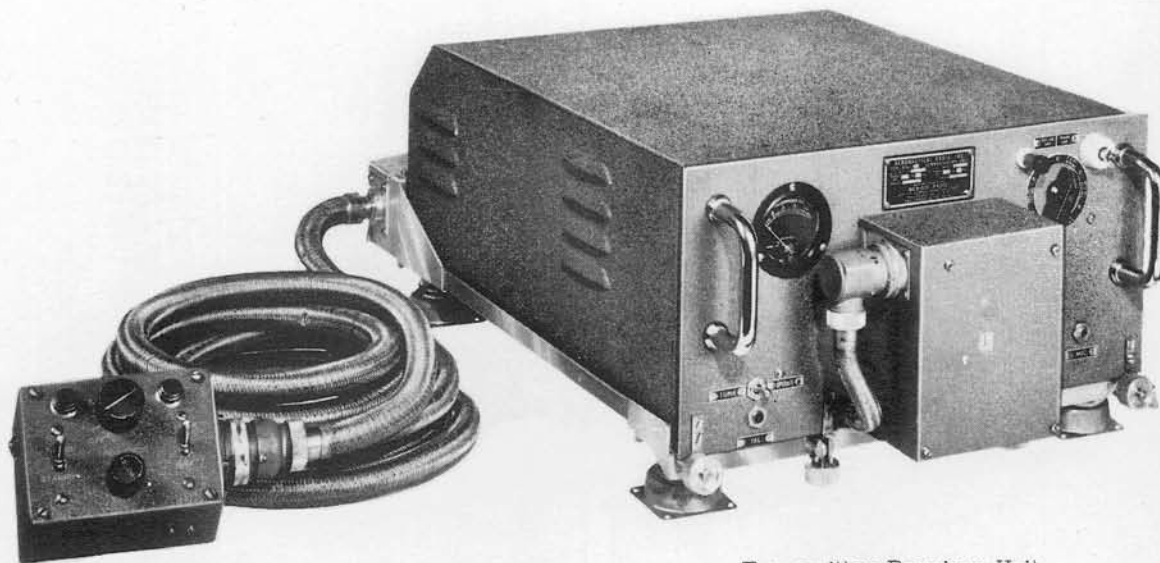
This equipment is primarily intended for transport aircraft where pilot operation is a major requirement. It is designed for installation in C-47A, C-46, C-54, C-87 and C-93 type aircraft.

Radio Set AN/ARC-9 is an interim equipment that will be used until such time as a suitable complementary receiver is developed for use with Radio Transmitting Set AN/ART-13.

Army Supply Program requirements as of 1 December 1944 were 3,530 for the calendar year 1944 and 305 for 1945.

POWER INPUT	50 WATTS @ 25 VOLTS D.C.
FREQUENCY	2.5 TO 13 MEGACYCLES: 10 FIXED CHANNELS WITHIN THIS RANGE, CRYSTAL CONTROLLED
TYPE OF SIGNAL	VOICE
RANGE	300 MILES

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
4	807	3	12SK7
1	6L6	1	12SA7
1	6V6	2	12A6
2	12C8		



Remote Control Box MS-44-F

Transmitter-Receiver Unit
RTA-1B

RADIO SET AN/ARC-9

TOTAL WEIGHT 93 LBS.

Component	Nomenclature	Size	Weight
Communication Unit	Bendix Type RTA-1B	10" x 16" x 26"	
Mounting Base	Bendix Type MT-68E	2" x 16" x 26"	
Remote Control Unit	Bendix Type MS-44F	2" x 4" x 5"	
Interconnecting Cable			

and includes right-angle plug

March 1945

UNCLASSIFIED

Radio Set AN/ARC-10 is an airborne radio relay which uses a VHF transmitter and receiver assembly similar to that of Radio Set SCR-522. It will simultaneously receive signals from one station and retransmit them without mutual interference, on suitable combinations of receiving and transmitting carrier frequencies, and will maintain communication with VHF equipped aircraft beyond line of sight distances when tactical or terrain conditions prohibit the establishment of an effective fixed relay station. Audio circuits of the receiver are electrically connected to the speech input circuit of the transmitter through a limiting amplifier which maintains a substantially constant modulating voltage independent of variations in received signal strength.

The equipment provides four crystal-controlled channels for reception and transmission, with simultaneous mechanical shifting of transmitter and receiver frequencies by the monitor. The "break-in" as required is provided by the monitoring operator who can modulate the relay transmitter at any time. The "break-in" transmission will be received by all stations served by the relay station if they are not transmitting.

When used as a normal transmitter-receiver, it permits two-way communication with Radio Set SCR-522 over a distance of 135 miles from 12,000 feet altitude. Power is obtained from a 24 volt d.c. primary power source.

AN/ARC-10 is not duplicated by or similar to any existing standard equipment in use by the Army Air

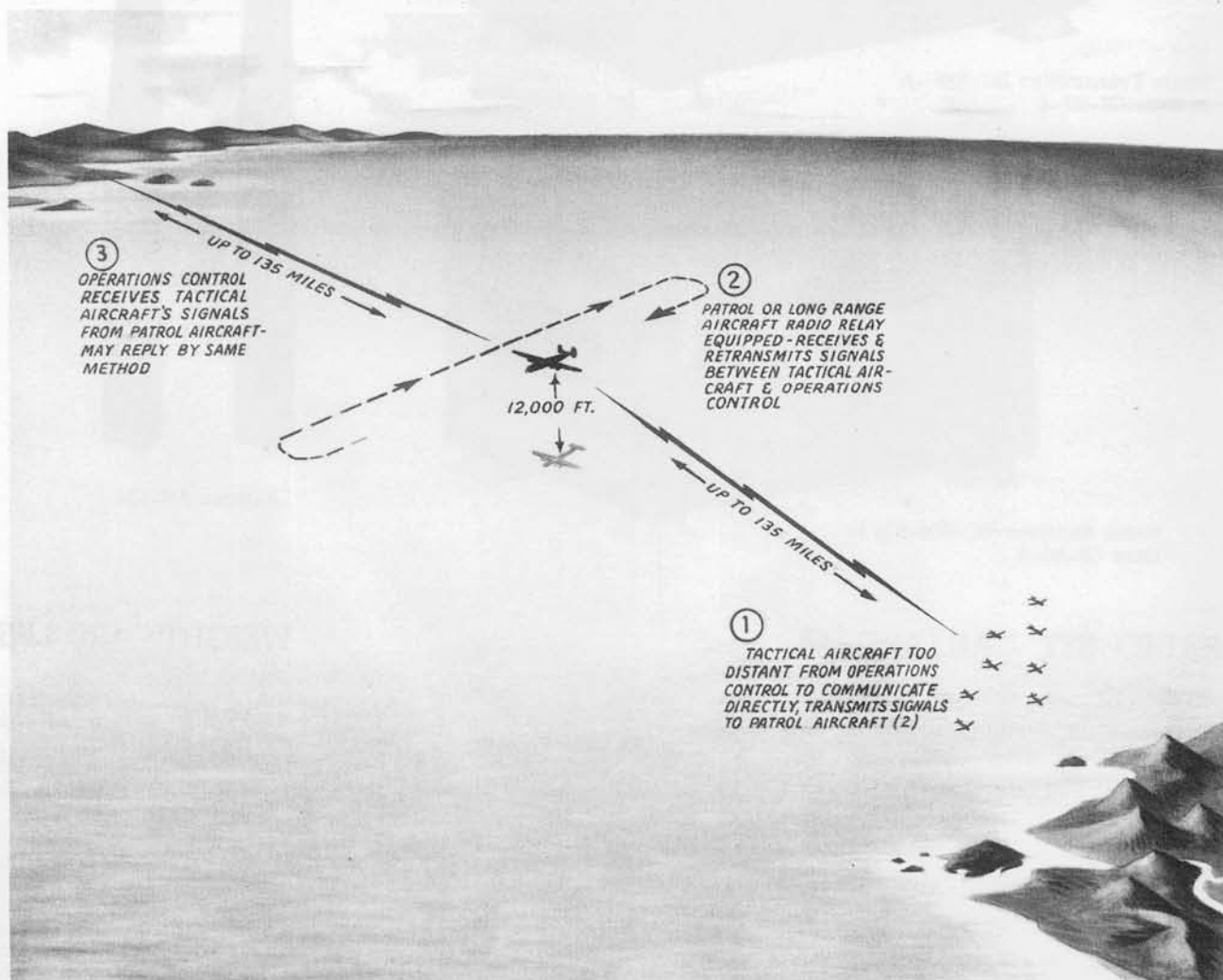
Forces. Its development was required by a tactical need for the extension of the reliable range between VHF ground stations and aircraft equipped with VHF radio. It is expected that the equipment will greatly aid the operations of the AAF by extending the range of such communication systems.

Test equipment required for the maintenance and tuning of AN/ARC-10 has not been determined.

There were no Army Supply Program requirements as of 1 December 1944.

POWER INPUT	24 VOLTS D.C.
FREQUENCY	100-156 M.C.
TYPE OF SIGNAL	VOICE
RANGE	135 MILES AT 12,000 FEET.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6G6G	1	12H6
1	6SS7	3	12SG7
3	12A6	1	9002
2	832	3	9003
3	12AH7GT	2	12J5GT
1	12G8		



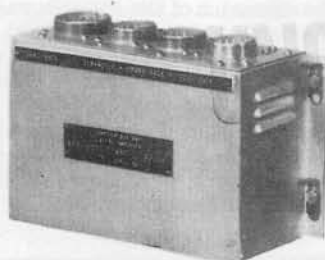
Radio Set AN/ARC-10 is an airborne radio relay which will simultaneously receive and retransmit signals (on frequencies 100 to 156 Mc.) up to a range of 135 miles, providing extended range for VHF command radio sets.

March 1945

UNCLASSIFIED

AN/ARC - 10

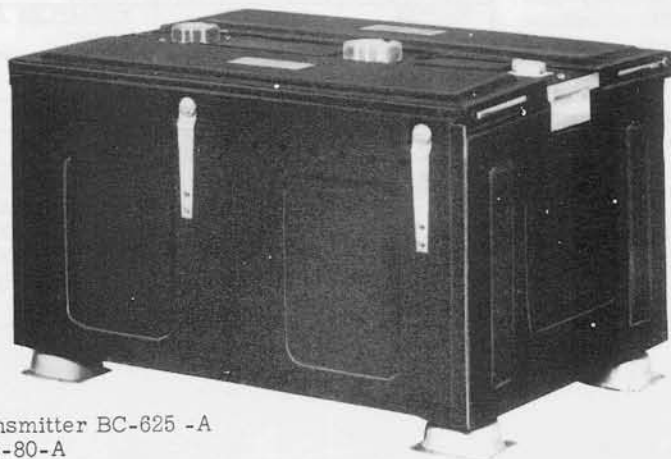
CONFIDENTIAL



Junction Box J-75(XA-A)/
ARC-10(XA-2)



Control Box
C-132(XA)/ARC-10(XA-1)



Radio Transmitter BC-625 -A
in Case CS-80-A



Radio Receiver BC-624-AM in
Case CS-80-A



Antenna AN-104

RADIO SET AN/ARC-10

WEIGHT 120 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	BC-624-AM	10" x 17" x 16"	32 Lbs.
Radio Transmitter	BC-625-A	10" x 17" x 16"	34 Lbs.
Rack	FT-244-A	16" x 12" x 2"	
Case	CS-80-A	1" x 17" x 13"	
Junction Box	J-75/ARC-10	3" x 6" x 9"	7 Lbs.
Mounting Plate	MT-256/ARC-10	2" x 6" x 1"	
Cord	CX-233/ARC-10	15" long	1 Lb.
Cord	CX-230/ARC-10	21" long	1 Lb.
Control Box	C-132/ARC-10	2" x 4" x 6"	3 Lbs.
Dynamotor	PE-94	13" x 9" x 6"	38 Lbs.
Antenna	AN-104 (2 each)		

and includes cords, plugs, etc.

March 1945

~~RESTRICTED~~

AN/ARR-11

Radio Receiving Set AN/ARR-11 is an airborne set which receives MCW or voice modulated signals within the 200 to 500 kilocycle band and the 1.5 to 18 megacycle band. It operates from a 24-volt power supply and comprises certain of the radio receiving components of the present Radio Set SCR-287-A, the principal component of which is Radio Receiver BC-348-(). Any production type of this receiver may be used except production type BC-348-B, BC-348-C or BC-348-D. Any mounting FT-154-() for this receiver may be used except FT-154-A.

Radio Receiver BC-348 is capable of receiving voice, MCW, or CW signals in the frequency range of 1.5 to 18.0 mc.

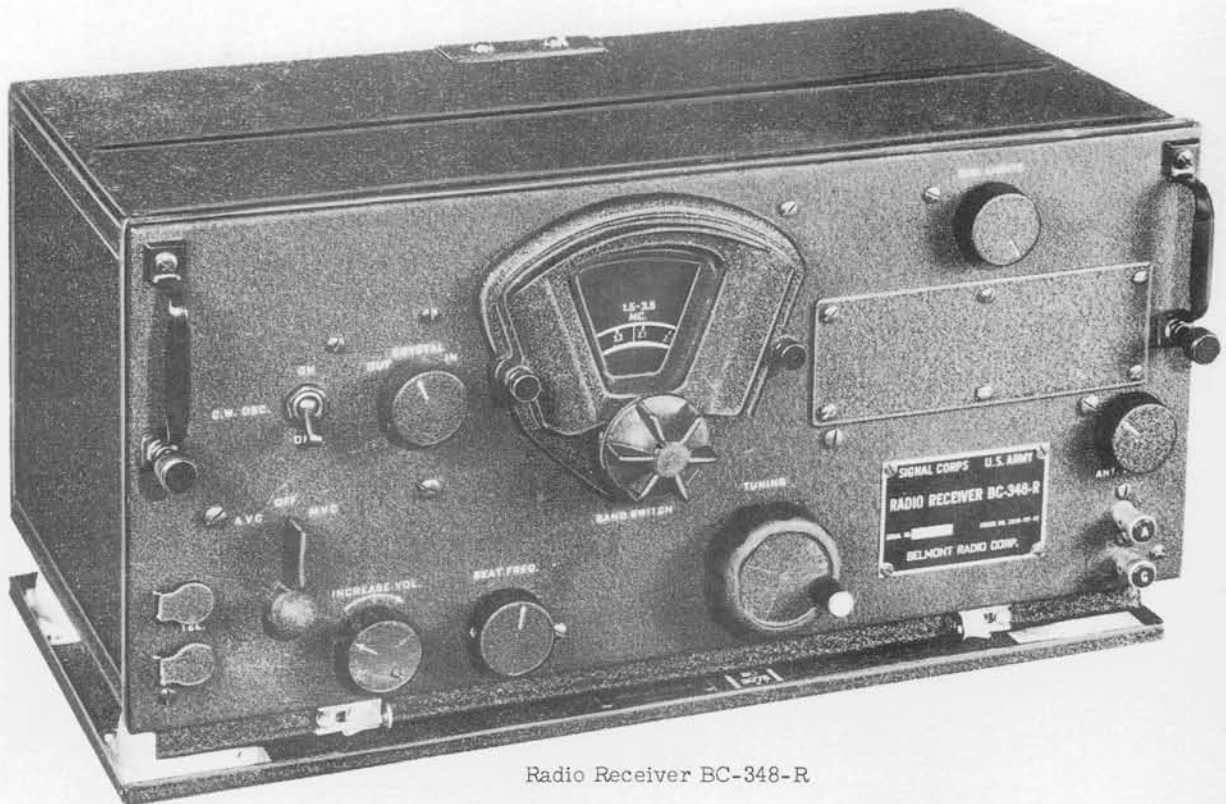
It is now being used as the companion receiver to the AN/ART-13A transmitter. The receiver and transmitter operate from a common liaison antenna AN/ARA-4. The three units together are known as Radio Set AN/ARC-8.

Test equipment required for maintenance includes general purpose testing equipment only.

Army Supply Program requirements as of 11 December 1944 were 19,401 equipments for the calendar year 1944 and 18,443 for 1945.

POWER INPUT	65 WATTS @ 28 VOLTS
POWER OUTPUT	400 MILLIWATTS
FREQUENCY	200-500 KC. 1.5-18 MC. (5 bands)
TYPE OF SIGNAL	CW; MCW; VOICE
RANGE	800 MILES (Approx.)
SENSITIVITY	LESS THAN 5 MICRO- VOLTS 1.5-18.0 MC. LESS THAN 8 MICRO- VOLTS 200-500 MC.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
3	6K7	4	6SK7
1	6J7	1	6SA7
1	6C5	1	6SJ7
1	41	1	6SR7
1	6B8	1	6K6GT
1	6F7		
1	RCA-991 neon bulb		



Radio Receiver BC-348-R

RADIO RECEIVING SET AN/ARR-11

TOTAL WEIGHT 42 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	BC-348-()	10" x 18" x 11"	35 Lbs.
Mounting	FT-154-()	2" x 9" x 18"	4 Lbs.

and includes plugs, cable, and adapters.

March 1945

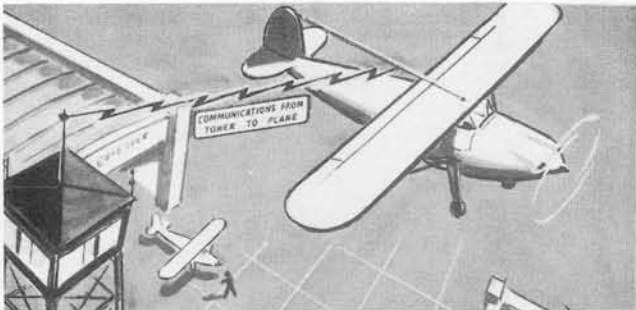
Radio Receiving Set AN/ARR-13 is a small, light weight airborne radio range receiver providing ranges and tower reception.

The receiver operates from 12-14 volts d.c. with plate power supplied from RCA model AVA-126 power supply. This receiver operates in conjunction with radio installation in type L-5 observation planes, when RCA model AVR-20 radio receiver and model AVT-112 transmitter is installed. This receiver covers 195 to 405 kc. with a pre-set 278 kc. channel for airport tower reception. The equipment includes cables for interconnection with above components.

Radio Receiver R-76/ARR-13 is the commercial Satchell Type 512 Radio Receiver.

No special test equipment is required for maintenance and tuning.

Army Supply Program requirements as of 1 December 1944 were 3,850 for the calendar year 1944.



Installed in light aircraft, Radio Set AN/ARR-13 provides facilities for the reception of range signals and tower control communications.

POWER SUPPLY	12-14 VOLTS D.C.
FREQUENCY	195-405 KC
TYPE OF SIGNAL	MCW

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	14A4	1	14B6
2	14A7	1	14J7



Interconnecting Cable



Radio Receiving Set
AN/ARR-13

RADIO RECEIVING SET AN/ARR-13

TOTAL WEIGHT 5 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	R-76/ARR-13	4" x 4" x 7"	3 Lbs.
Cord	CX-180/ARR-13		

and includes 20,000 ohm resistor for power supply modification.
March 1945

~~RESTRICTED~~

AN/ART-13 A

Radio Transmitting Set AN/ART-13A, an improved version of the Navy type ATC transmitter, is a long range liaison transmitter of 100 watts nominal power output, providing CW, MCW or voice emission, and using either fixed or trailing wire aircraft antennas. The set is designed to provide a multi-channel airborne liaison transmitter for use by the Army and Navy, and is intended to replace Radio Transmitter BC-375 in Army bombardment and transport aircraft.

Of the master oscillator type, the transmitter incorporates an automatic tuning system which permits transmission on any of 11 pre-set frequencies. Frequency selection is obtained automatically by use of a rotary switch operated either locally at the transmitter or by means of a remote control box. The transmitter provides CW, MCW and voice modulated types of emission. The audio system is capable of modulating the carrier (100 watts normal) at least 90 percent for MCW or voice emission.

Provision is made for the use of either a standard carbon microphone or magnetic microphone. Power output varies from 5.5 watts at 200 kc. to 30 watts at 600 kc. and approximately 90 watts in the range 200 to 18,100 kc. The equipment is designed to operate from the 28-volt d.c. power supply used in the aircraft.

AN/ART-13A has several outstanding features not provided by the BC-375. These include units covering 11 pre-set channels, one in the 200 to 600 kc. band and 10 in the 2 to 18 mc. band, any one of which may be placed in operation in 20 seconds, with provision for remote position channel selection. No plug-in units are required. The transmitter also contains a calibrated frequency indicator (CFI unit) which eliminates the need of a frequency meter for setting up the transmitting channels.

Operation is provided for altitudes up to 40,000 feet and is accomplished by means of an automatic pressure switch which reduces the transmitter to about half power at altitudes above 15,000 feet.

The low frequency oscillator has been designed as a separate unit, since in operations not requiring low frequencies, the oscillator and antenna loading coils may

be removed, thus saving space and weight. Oscillator 0-17/ART-13A covering the 200 to 600 kc. band is an insertion unit to provide an additional channel for low frequency operation. Panel MX-128/ART-13 is inserted in place of the oscillator when low frequency operation is not to be used.

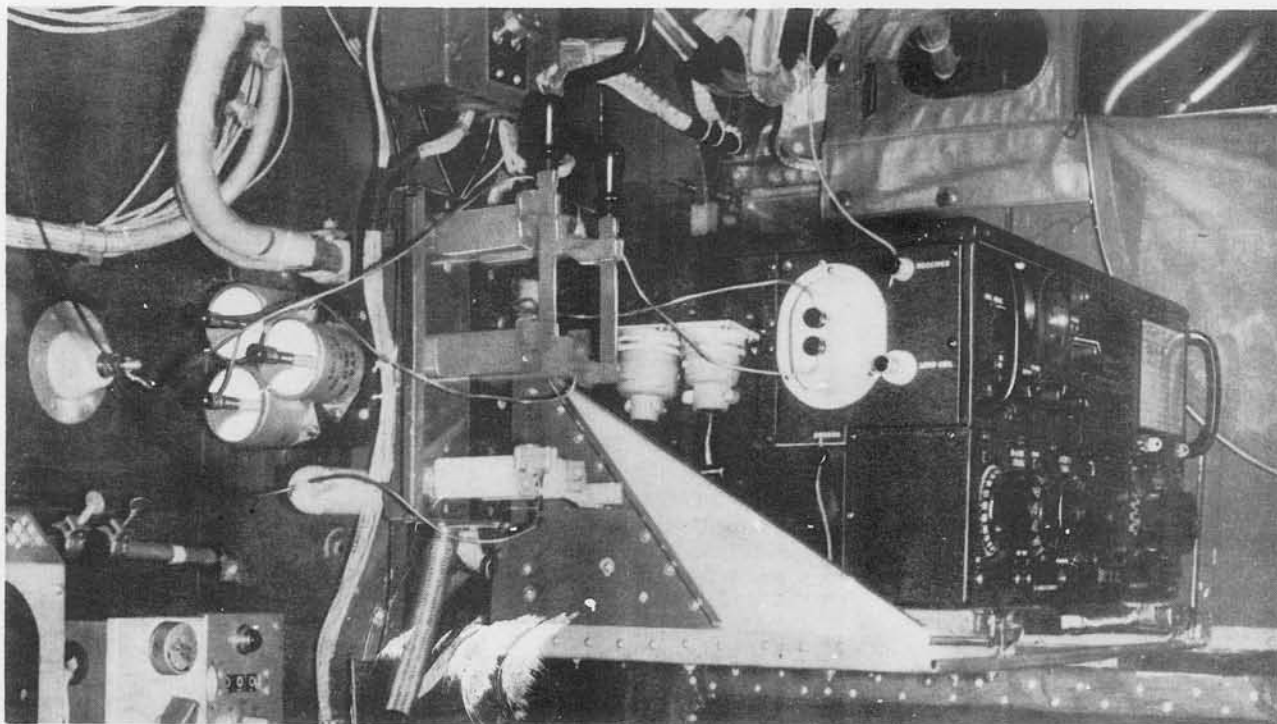
Further improvements include a combined antenna loading coil and switching unit, Antenna Loading Unit CU-32/ART-13A. This loading unit is replaced by Switch SA-13/U when low frequency operation is not required. An improved CFI unit provides a more accurate and uniform signal for lining up the channels of the transmitter over the entire frequency range.

Standard, general purpose test equipment, available in the services, and a few special tools provided with the transmitter, are all the test equipment needed for servicing this set.

Army Supply Program requirements as of 30 November 1944 were 11,251 for the calendar year 1944, and 21,119 for 1945.

POWER INPUT	1100 WATTS @ 28 VOLTS D.C.
POWER OUTPUT	10 WATTS 200 TO 600 KC. 90 WATTS
FREQUENCY	200-600 KC. AND 2-18 MC.
TYPE OF SIGNAL	CW, MCW, VOICE
RANGE	CW-750 MILES, MCW-500 MILES, VOICE-250 MILES
FREQUENCY SHIFT TIME	25 SEC.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	837	1	12SJ7
2	1625	2	6V6GT
1	813	1	12SA7
2	811	2	12SL7



Radio Set AN/ART-13, installed aft of bomb bay in B-25J. This equipment serves as a long range transmitter and supercedes Transmitter BC-375.



Radio Transmitter
T-47/ART-13



Control Unit
C-87/ART-13



Antenna Loading Coil
CU-26/ART-13



Antenna Loading Coil
CU-25/ART-13



Dynamotor Unit
DY-11/ART-13



Antenna Shunt Capacitor
CU-24/ART-13

RADIO TRANSMITTING SET AN/ART-13 A

TOTAL WEIGHT 150 LBS.

Component	Nomenclature	Size	Weight
Switch	SA-46/ART-13A	4" x 2" x 5"	1 Lbs
Radio Transmitter	T-47A/ART-13	11" x 13" x 24"	66 Lbs.
Mounting Plate	MT-283/ART-13	21" x 14" x 2"	2 Lbs.
Mounting Base	MT-284/ART-13	20" x 15" x 3"	3 Lbs.
Dynamotor Unit	DY-17/ART-13A	7" x 12" x 9"	28 Lbs.
Mounting Plate	MT-164/ART-13	7" x 1" x 2"	1 Lb.
Control Unit	C-87/ART-13	4" x 4" x 7"	2 Lbs.
Antenna Shunt Capacitor	CU-24/ART-13	5" x 5" x 4"	2 Lbs.
Antenna Loading Unit	CR-32/ART-13A	12" x 23" x 13"	26 Lbs.
Oscillator	O-17/ART-13A	10" x 6" x 5"	5 Lbs.

and includes plugs, wire, casing, shafting, sleeves, etc.

~~RESTRICTED~~

AN/ASA-3

(AND AN/ASA-1; AN/ASA-1A)

Static Discharger Assembly AN/ASA-1 is a wick type discharger for discharging of accumulated precipitation static on aircraft while in flight. It consists of an aluminum tube containing an ethylene glycol saturated wick and is mounted on the wings tips and tail assembly of medium and heavy bombers and transports. Six to ten Static Discharger Assemblies AN/ASA-1 and/or AN/ASA-1A are required per airplane.

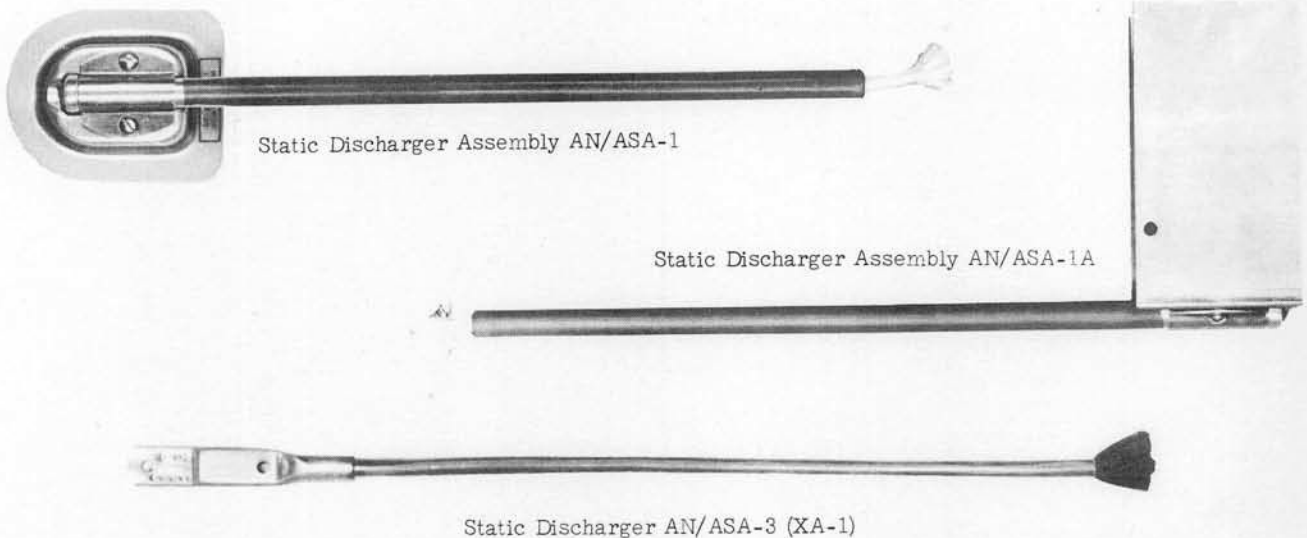
This assembly was procured as an interim measure for the purpose of alleviating extreme static conditions encountered in aircraft until a final solution on this problem could be obtained. Static Discharger Assembly AN/ASA-1A differs from AN/ASA-1 only in the mounting bracket used. This equipment is now substitute standard.

Static Discharger AN/ASA-3 has replaced Static

Discharger AN/ASA-1 as standard equipment. It consists of a cotton wick made conducting by chemical precipitation of silver into the wick fiber. The wick is enclosed in a 10 1/2 inch length of vinylite tubing which is secured in a 3 inch length of aluminum tubing. This equipment is somewhat more effective as a discharger than Static Dischargers AN/ASA-1 and AN/ASA-1A and requires much less maintenance. Ten to twelve Static Dischargers AN/ASA-3 are required for an airplane installation.

No test equipment is required for maintenance.

Army Supply Program requirements as of 30 November 1944 were 196,250 AN/ASA-1 assemblies, and 328,860 AN/ASA-3 assemblies for the calendar year 1944, and 129,264 AN/ASA-3 assemblies for 1945.



AN/ASA-1

* TOTAL WEIGHT LESS THAN 1 LB

Component	Nomenclature	Size	Weight
Static Discharger	MX-43/ASA-1	Length 12" x diam. 1/2"	
Mounting Bracket	MT-133/ASA-1	3" x 4" x 1"	

AN/ASA-1A

* TOTAL WEIGHT LESS THAN 1 LB

Component	Nomenclature	Size	Weight
Static Discharger	MX-43/ASA-1	Length 12" x diam. 1/2"	*
Mounting Bracket	MT-134/ASA-1A	4" x 2" x 3"	*

AN/ASA-3

* TOTAL WEIGHT LESS THAN 1 LB

Component	Nomenclature	Size	Weight
Static Discharger	AN/ASA-3	Length 14" x 9/32" diam.	*

*

March 1945

~~RESTRICTED~~

AN/CRC-1

Radio Set AN/CRC-1 is a VHF communication equipment for ground-to-air communication. It is designed to be dropped by parachute from an aircraft and is packaged to permit subsequent man-drawn mobility on the ground. It was improvised for use as interim equipment until a lighter and more compact parachute-dropped VHF equipment could be developed.

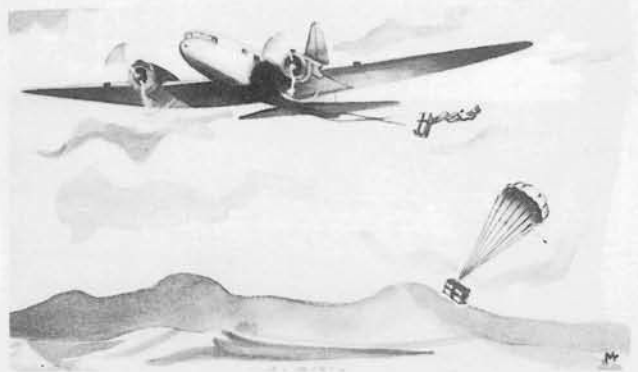
It consists mainly of the transmitter-receiver components of Radio Set SCR-522, Power Unit PE-214-A, Rectifier RA-62 and the necessary containers, parachutes and accessories. It is similar to Radio Set SCR-624 except for the elimination of remote control features, changes in power unit, packaging containers and parachutes arranged to minimize landing shock.

The set used a crystal controlled voice transmitter and a superheterodyne receiver. It operates over a frequency range of a 100-156 mc. Power is supplied from a 115/230 volt, 50-60 cycle a.c. power source.

Test equipment required for the maintenance and tuning of AN/CRC-1 includes Test Set I-139-A and Test Equipment 1E-36 for class A maintenance and Test Equipment 1E-19 for class B maintenance.

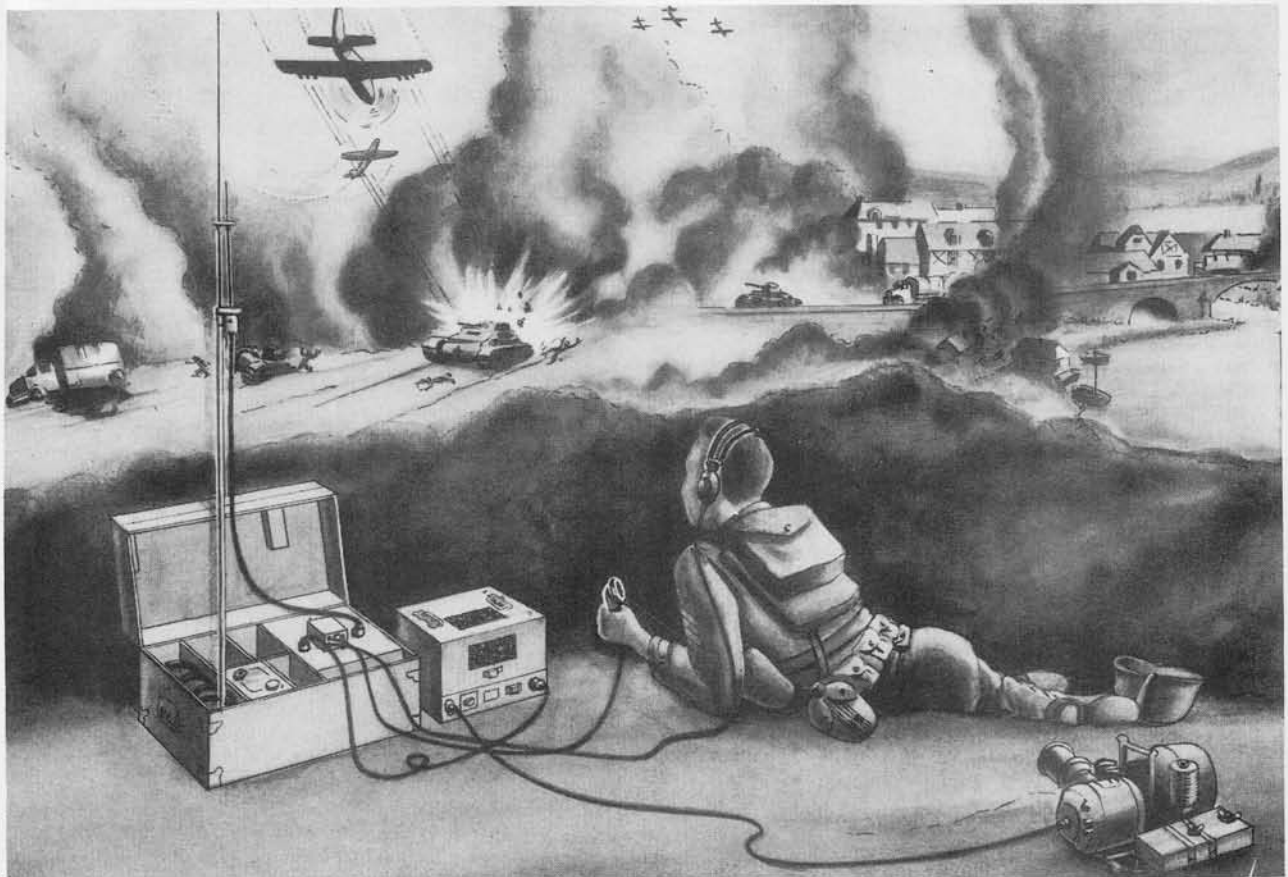
Army Supply Program requirements as of 1 December 1944 were 140 for the calendar year 1944.

POWER INPUT	325 WATTS
POWER OUTPUT	6 WATTS (peak)
FREQUENCY	100-156 MC. (4 preset crystals)
TYPE OF SIGNAL	VOICE
RANGES	LINE OF SIGHT TO 130 MILES (max.)

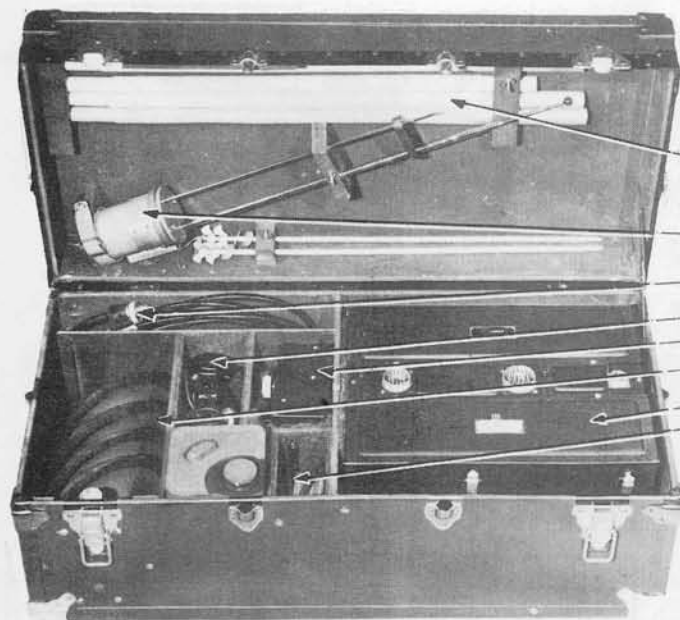


Radio Set AN/CRC-1 may be dropped (in two chests) from aircraft to provide forward ground troops or paratroops with means of transmitting information on which air support or relief may be organized.

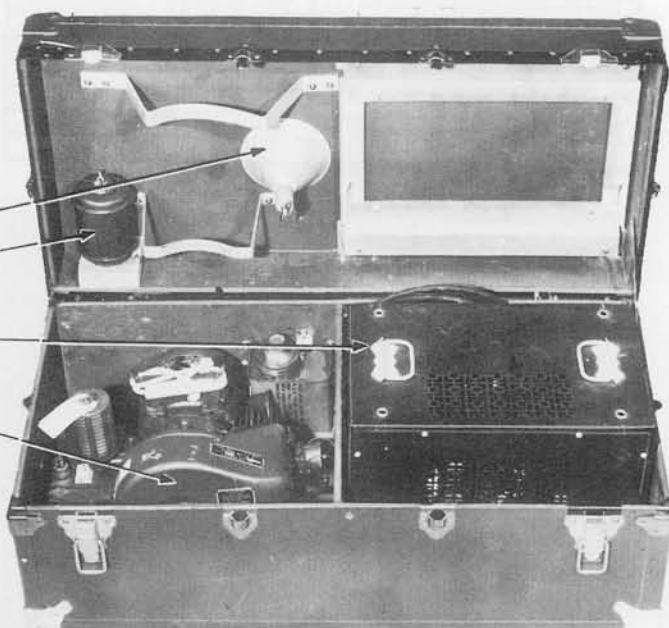
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	832	1	9002
3	12A6	3	9003
1	6G6G	1	12AH7GT
2	6SS7	3	12SG7
1	12J5GT	2	6X5GT/G
1	12C8	1	12A6GT
		2	5U4G



When assembled for operation, Radio Set AN/CRC-1 may be used as a ground-to-air command set to transmit information from ground troops to combat aircraft relative to strategic ground targets against which strafing or bombing action is desired.



Antenna Mast
Antenna
Antenna Cable
Microphone
Control Box
Wheels
Radio Set
Head Set



Funnel
Muffler
Rectifier
Power Unit

RADIO SET AN/CRC-1

TOTAL WEIGHT 275 LBS.

Component	Nomenclature	Size	Weight
Radio Receiver	BC-624		
Radio Transmitter	BC-625		
Rack	FT-244		
Case	CS-80		
Rectifier	RA-62		
Power Unit	PE-214-A		
Control Box	C-50/CRC-1		
Antenna	AT-18/CRC-1		
Chest	CY-26/CRC-1	34" x 17" x 15"	159 Lbs. *
Chest	CY-27/CRC-1	34" x 17" x 15"	116 Lbs. *
also earphones, headsets, cords, plug, etc.			

Weights of chests includes components packed in each.

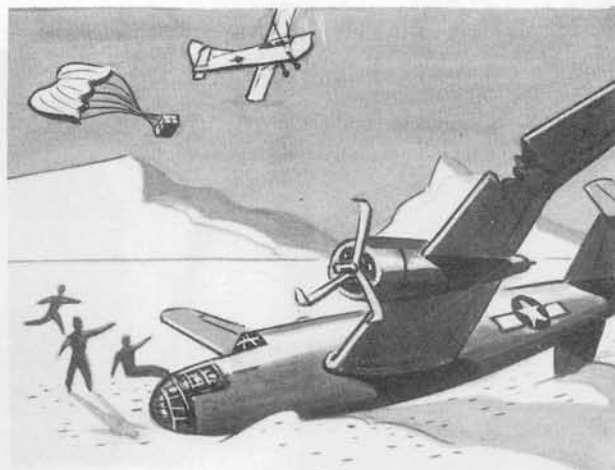
Radio Receiving Equipment AN/CRR-1 is a lightweight assembly of equipment including a battery operated radio receiver (Setchell Carlson Model #591) providing voice and modulated continuous wave reception over the frequency range of 195 to 405 kilocycles. The equipment also includes a headset, a disconnect cord, a length of antenna wire and a set of batteries. The assembly, weighing less than 15 pounds, is packaged in a water repellent container suitable for hand carrying. The use of a superheterodyne circuit with a stage of RF provides good sensitivity with ample selectivity.

Reception is provided over a range of 150 miles. This equipment, when used in conjunction with the sea rescue transmitter BC-778, which is a part of Radio Set SCR-578, will provide for two-way radio communication between aircraft forced down on the Arctic ferry routes and rescue agencies.

No special test equipment is required for maintenance.

Army Supply Program requirements as of 1 December 1944 were 420 for the calendar year 1944.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	1LN5	1	1LH4
1	1LA6	1	1LB4



Radio Set AN/CRR-1 may also be dropped by parachute to isolated air-crews.

POWER INPUT	25 WATTS @ 24/28 VOLTS DC
FREQUENCY	195-405 KC.
TYPE OF SIGNAL	VOICE; MCW
RANGE	150 MILES



Developed for emergency rescue work along the northern ferry routes, Radio Set AN/CRR-1 is used by stranded air crews to receive communications transmitted by rescue parties in the 195-405 kc. band, either voice or MCW. Transmission facilities for stranded parties is provided by SCR-578.

March 1945

AN/CRR-1

UNCLASSIFIED



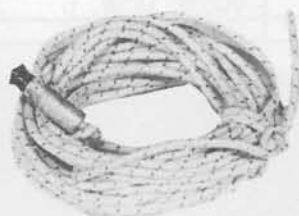
Battery AB-194



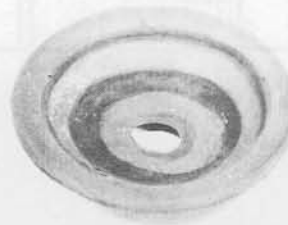
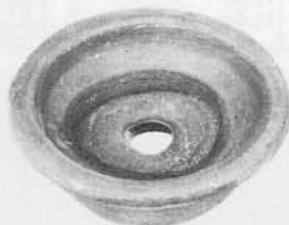
Receiver Model 591



Battery AB-194



Antenna Wire



Ear Cushions



Headset HS-23



Disconnect Cord CD-198

RADIO RECEIVING EQUIPMENT AN/CRR-1

TOTAL WEIGHT 15 LBS.

Component	Nomenclature	Size	Weight
Radio Range Receiver	Setchell-Carlson Model 591	4" x 4" x 7"	4 Lbs.
Battery, Ray-O-Vac No.	AB-194 (2 each)		
Headset	HS-23		
Cord	CD-307-A		
Antenna Assembly			

March 1945

Recorder-Reproducer AN/GNQ-2 is ground equipment which records in a similar manner as associated airborne recorder AN/ANQ-2. In addition, it provides playback by means of a pickup, amplifier and loudspeaker.

Recordings are made by embossing on a cellulose acetate disk with a special wax surface treatment. The disk is 0.010 inch thick by 7 inches in diameter. The disk is driven by an off-center pin which engages a hole in the disk and one of a series of corresponding off-center holes in the turn-table. The drive pin is mounted on a spring-loaded record clamp which holds the disk on the turn-table. The embossing stylus consists of a sapphire point (tip radius 0.0015") on an aluminum alloy shank 3/4 inch long by 0.063 inch diameter. Turntable speed is 11.75 r.p.m., line spacing 210 lines per inch, and recording time 30 minutes on each side of the disk. The outer and inner groove speeds are 4.2 inches second and 2.1 inches second, respectively.

The magnetic recording head is mounted on a short counter-balanced arm which is pivoted at its center of gravity. The recording head arm is spring-loaded, and the vertical force at the stylus is approximately 5 ounces. The recording head carriage is driven by an overhead feed mechanism of conventional design.

The turntable is driven by a rubber-rimmed idler which engages the bottom surface of the turntable. The idler is driven by knurled drive wheel which is driven, through a flexible coupling, by a gear reduction box built into the motor. The motor is a 115 volt induction motor with a rotor speed of 1700 r.p.m.

The turntable consists of two halves joined by a sponge rubber pad. The upper half is supported on a stainless steel shaft which rests in a journal assembly consisting of two Oilite sleeve bearings and a single ball bearing at the bottom.

The pickup is a crystal type cartridge and is mounted on ball pivots on a carriage which is moved by a feed screw which is out on the same shaft as the recorder feed screw. The cartridge mounting is pivoted at its cen-

ter of gravity and spring loaded, with vertical force at the stylus approximately 3/4 oz.

The equipment operates at a nominal voltage of 115 volts, 60 cycles per second and draws approximately 0.6 ampere when the motor is running. Standby current is 0.3 ampere.

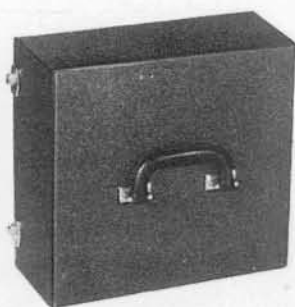
AN/GNQ-2A differs slightly from GNQ-2 in that a 6V6GT tube replaces on 6SJ7GT, the radio switch is removed, and includes microphone M-9/V, mounting MT-335/V, cord CV-583/GNQ-2A and case CY-87/GNQ-2.

Test equipment require for maintenance includes general purpose testing equipment, such as multi-meters and tube testers.

Army Supply Program requirements as of 30 November 1944 were for 96 AN/GNQ-2 for the calendar year 1945; and 270 AN/GNQ-2A for 1944 and 100 for 1945.

POWER INPUT	115 VOLTS A.C.
FREQUENCY	AUDIO
TYPE OF SIGNAL	VOICE
RECORDING TIME	30 MINUTES (ONE SIDE).
TURNTABLE SPEED	11.75 R.P.M.
FREQUENCY RESPONSE	WITHIN 3 DB & 12 DB
SIGNAL TO NOISE RATIO	32 DB AT 1000 C.P.S.
LINE SPACING	210 LINES PER INCH

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6SJ7	1	6X5
1	6V6GT/G	1	NE-45 NEON



Recorder-Reproducer Lid



Dynamic Microphone



Recorder-Reproducer

RECORDER-REPRODUCER AN/GNQ-2

TOTAL WEIGHT 79 LBS

Component	Nomenclature	Size	Weight
Recorder-Reproducer Unit	RD-5/GNQ-2	10" x 12" x 11"	27 lbs.
Case	CY-87/GNQ-2	12" x 12" x 13"	18 lbs.
Recording Disc.	MX-119/GNQ-2	0.010" by 7" Diam.	
Loudspeaker	LS-107/GNQ-2	3" x 6" x 9"	3 lb
Mounting	MT-279/GNQ-2		
Microphone	T-17		
Headset	HS-33		

and includes a set of operating accessories

March 1945

HS-33

Headset HS-33 is a low impedance (600 ohms), flat-response headset of the headband type primarily intended for use in cabin type aircraft in conjunction with various radio and interphone systems. It consists of two Receivers, ANB-H-1, Cushion M-162-A or Headset Cushion MX-41/AR, Headband HB-7 and Plug PL-354.

Headset HS-33 and Headset HS-38 are the new standard headsets developed for use with aircraft radio and interphone equipment. These headsets replace Headsets HS-23 and HS-18. Headset HS-33 is used with Headband HB-7, while Headset HS-38 is for use with the Air Corps helmet.

Superiority of the new headsets from the viewpoint of speech intelligibility is especially evident under high noise level conditions and at high altitudes. Carefully controlled tests, both in flight and in the laboratory, in which the more severe service conditions were simulated, show increases of approximately 20 percent in the intelligibility of speech heard through the equalized high-fidelity headsets as compared to Headsets HS-23 and HS-18.

Army Supply Program requirements as of 15 December 1944 were for 247,424 HS-33 for the calendar year 1944 and 302,451 for 1945.



Headset HS-33

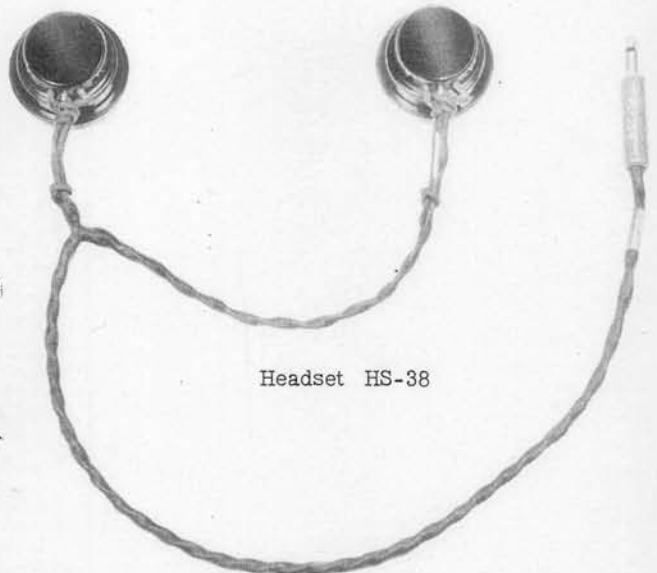
HS-38

Headset HS-38 is a low impedance (600 ohms), flat response headset of the helmet type primarily intended for use in a flyer's helmet and used in conjunction with radio and interphone systems installed in aircraft. The assembly consists of two Receivers ANB-H-1, two chamois cap covers, two chamois grid covers, Plug PL-354 and and Cap CO-328 with identification tag attached.

Headset HS-38 is the same as Headset HS-33 except for the chamois cap covers and the grid covers which are securely cemented to the receivers as an aid in preventing the ears from becoming frost bitten.

Headset HS-38-A is installed in Helmet A-11 and is used with various airborne radio sets. The headset is provided with a disconnecter in the cord so that in case of a forced jump, the cord will automatically be disconnected.

Army Supply Program requirements as of 30 November 1944 were for 427,704 HS-38 for the calendar year 1944 and 212,997 for 1945.



Headset HS-38

ANB-M-C1

Microphone ANB-M-C1 is a carbon microphone designed for use in A-9, A-10 or A-10-A oxygen mask. It has a response that compensates for low frequency within the mask giving essentially a flat characteristic. It is used with various radio sets and interphone equipment.

Microphone ANB-M-C1 will provide considerably better performance than any throat type microphone. It is designed to obtain performance when used in an oxygen mask. Its electrical response efficiently compensates for the acoustical defects of the oxygen mask. Any oxygen mask provides an acoustical chamber for the voice, having distinct resonance at the lower frequencies. This must be offset by increased electrical response in the higher voice frequencies, if maximum fidelity in the reproduction of speech is to be obtained.

Army Supply Program requirements as of 30 November 1944 were for 342,705 ANB-M-C1 microphones for the calendar year 1944, and 203,797 for 1945.



Microphone ANB-M-C1

M-1/A

Microphone M-1/A is a face type, noise shielding, carbon microphone developed to provide a face microphone with good intelligibility in high ambient noise levels. It is electrically interchangeable with Microphone T-30 and ANB-M-C1 and uses Microphone ANB-M-C1 as a component mounted in a noise shield, specially designed for attachment to an Army Air Force helmet in the same manner as the oxygen mask.

It is suitable for use in an open cockpit type where the microphone is subjected to extremely high ambient noise levels and high wind velocities and is intended for use by personnel in airborne operations which do not require oxygen masks and which do not permit the use of hand-held microphones.

Army Supply Program requirements as of 30 November 1944 were 9,180 M-1/A microphones for the calendar year 1944.



Microphone M-1/A

M-3/A

Microphone M-3/A is a lip microphone for use in aircraft and includes suspension harness for properly attaching the microphone to the head of wearer or to a flyer's helmet. It includes a short cord terminating in Plug PL-291. This microphone is used in conjunction with equipment using Microphones ANB-M-C1 or T-30.

There were no Army Supply Program requirements as of 30 November, 1944.



Lip Microphone M-3/A

T-17



Microphone T-17

Microphone T-17 is a hand, carbon microphone with switch for changing from transmitting to receiving. It is a rugged, sturdy instrument, and when used with the moisture-proof Microphone Cover M-367, it will perform satisfactorily under the most severe service conditions.

It has, however, the two inherent disadvantages of hand-held microphones: It picks up and transmits the engine and propeller noise of the aircraft about as efficiently as it does the voice; and aircraft crew members have too many duties requiring the use of both hands, and the handling of a microphone at a critical moment during a mission is undesirable.

There were no Army Supply Program requirements for T-17 as of 26 December 1944.

T-30



Microphone T-30-P

Microphone T-30 is a carbon throat microphone which is actuated by mechanical vibrations of speech present at the throat of the speaker. It is generally used in conjunction with a radio transmitter and is controlled by a push-to-talk switch. It can be used as a part of an interphone system or with a chest unit for a telephone.

Because the microphone is excited chiefly by contact, it is performed well with respect to masking airplane and other noises, but because of its reliance upon contact excitation, rather than varying impact velocities of sound waves, it is not uniformly a good reproducer of speech. It is deficient in transmitting the higher frequency components of speech. The intelligibility of its output varies widely according to the shape of the throat, voice, and accent of the individual speaker. Its important practical advantage is that it leaves the hands free and may be worn with or without the oxygen mask.

Output of Microphone T-30 is comparable to Microphone T-17. It does not require a pre-amplifier and is a part of various interphone equipment, aircraft and vehicular radio sets. It is also used as an auxiliary to Microphone T-17.

Army Supply Program requirements as of 30 November 1944 were for 328,647 T-30 microphones for the calendar year 1944, and 249,531 for 1945.

T-44



Microphone T-44-A

Microphone T-44 is a magnetic type microphone for use in A-9, A-10 or A-10-A oxygen mask. It has the same performance characteristics as Microphone ANB-M-C1. It is used rather generally by the British in their aircraft command sets and was adapted to accomplish complete interchangeability in the operation of command equipment.

Not electrically interchangeable with a carbon microphone, T-44 operates at voltage levels considerably lower than the carbon microphones.

Army Supply Program requirements as of 30 November 1944 were for 9,838 T-44 microphones for the calendar year 1944.

Interphone Equipment RC-26 is a two-place interphone equipment for tactical use. Interphone Box BC-334 (master) is installed in the pilot's cockpit. Interphone Box BC-335 (remote) is for installation in the cockpit remote from the pilot. Interphone Amplifier BC-212 is so located that the leads connecting it to the control boxes and to the radio set junction box are as short as it is convenient to make them.

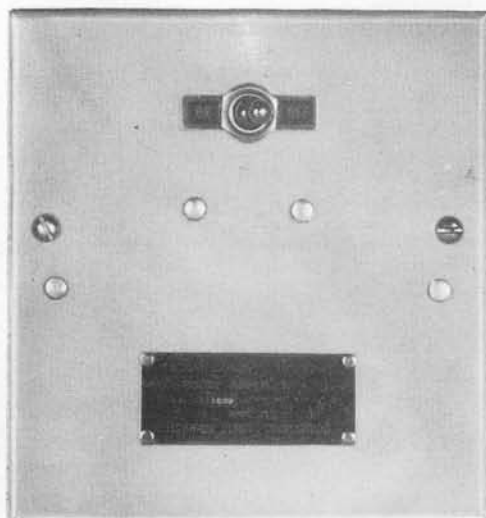
Electrically, it is identical with Interphone Equipment RC-27. The two differ mechanically, in that Interphone Equipment RC-27 has a remote-control switch which allows the occupant of the cockpit, in which Interphone Box BC-335 (remote) is installed, to mechanically operate the switch on Interphone Control Box BC-334 (master) mounted in the other cockpit.

Normally, power for the equipment is obtained from Radio Set SCR-() -183 or SCR-240. Power to operate the equipment can also be obtained from any other adequate d.c. power source (200-350 volts, 16 ma; 12 volts, 0.42 amps).

Test equipment required for maintenance includes general purpose test equipment such as multimeters and tube testers.

There were no Army Supply Program requirements as of 30 November 1944.

POWER INPUT	5 WATTS @ 12 VOLTS
TYPE OF SIGNAL	VOICE



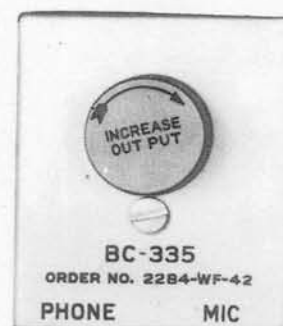
Interphone Amplifier
BC-212-D



Control Box
BC-327



Interphone Control Box
BC-334



Interphone Box
BC-335

INTERPHONE EQUIPMENT RC-26

TOTAL WEIGHT 4 LBS.

Component	Nomenclature	Size	Weight
Interphone Amplifier	BC-212	6" x 6" x 3"	2 Lbs.
Interphone Control Box	BC-334	4" x 4" x 4"	1 Lb.
Interphone Box	BC-335	4" x 3" x 2"	*
Control Box	BC-327	4" x 3" x 2"	*
Control Shaft and includes cords, plugs connectors etc.	MC-166	6 feet long	*

*Less than one lb.

March 1945

~~RESTRICTED~~
RESTRICTED

RC-27

RC-27

Interphone Equipment RC-27 is a two-place interphone equipment for basic training aircraft. Electrically, it is identical with Interphone Equipment RC-26. The two differ mechanically in that Interphone Equipment RC-27 has a remote-control switch which allows the occupant of the cockpit in which Interphone Box BC-335 (remote) is installed to mechanically operate the switch on Interphone Control Box BC-334 (master), mounted in the other cockpit.

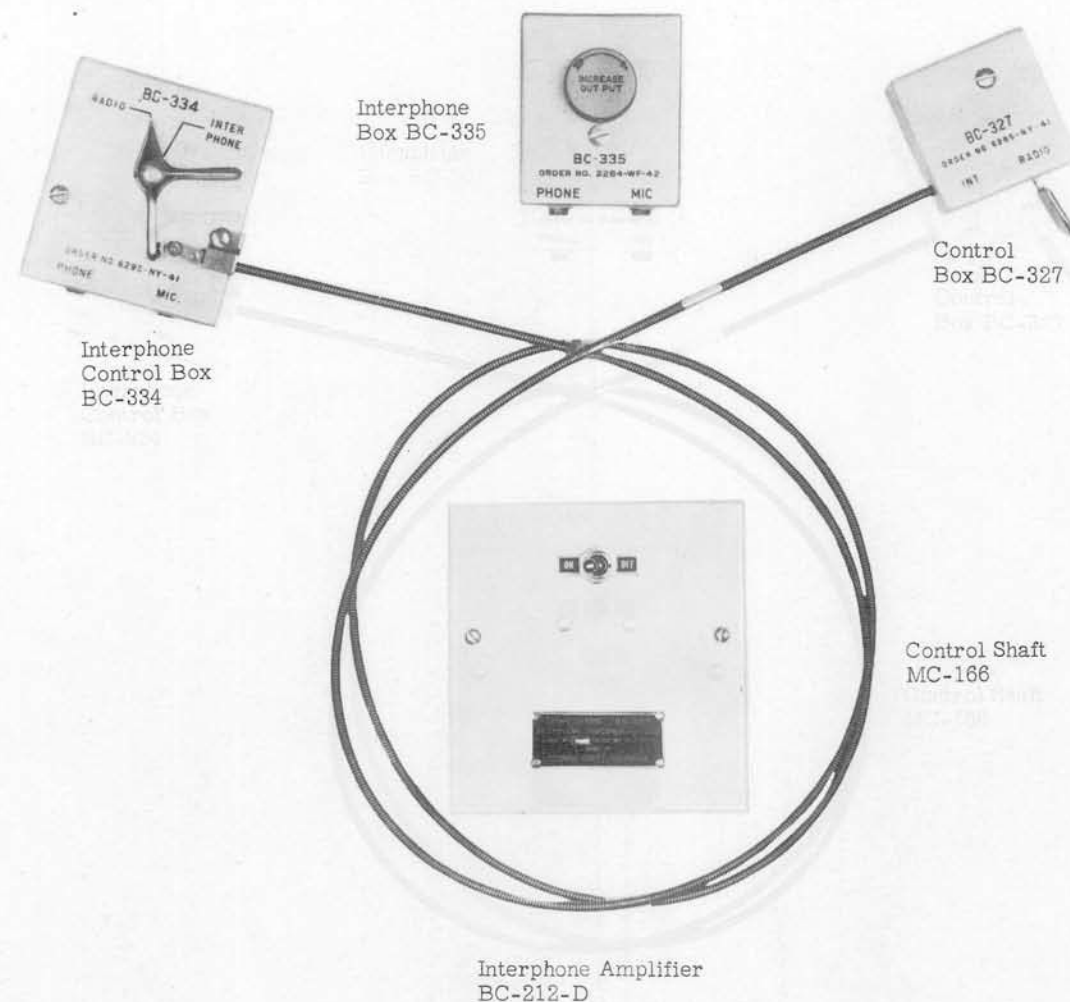
Normally, power for the equipment is obtained from Radio Set SCR-() -183 or SCR-240.

Test equipment required for maintenance includes general purpose testing equipment, such as multi-meters and tube testers.

There were no Army Supply Program requirements as of 30 November 1944

POWER INPUT	5 WATTS @ 12 VOLTS
TYPE OF SIGNAL	VOICE

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6C5		



INTERPHONE EQUIPMENT RC-27

TOTAL WEIGHT 5 LBS.

Component	Nomenclature	Size	Weight
Control Box	BC-327	4" x 3" x 2"	*
Control Shaft	MC-166	6 feet long	*
Jack	JK-26		
Interphone Amplifier	BC-212-D	6" x 5" x 3"	2 Lbs.
Interphone Control Box	BC-334	4" x 4" x 4"	1 Lb.
Interphone Box	BC-335	4" x 3" x 2"	*

*Less than one lb.

and includes lever assembly, bearing, cordage and plug.

March 1945

Interphone Equipment RC-35 is a high impedance two-place interphone equipment used in basic training aircraft. A remote control switch is provided which permits the occupant of the cockpit in which Interphone Box BC-335 (Remote) is installed to mechanically operate the switch on Interphone Control Box BC-334 (master), mounted in the other cockpit. RC-35-A is identical to RC-35 except it is a low impedance set using BC-335.

General purpose test equipment only is required for maintenance.

Army Supply Program requirements as of 30 November, 1944 were for 3,494 the calendar year 1944, and 3,55 and 1945

POWER INPUT	24 WATTS @ 28 VOLTS
POWER OUTPUT	7 WATTS
FREQUENCY	AUDIO
TYPE OF SIGNAL	VOICE

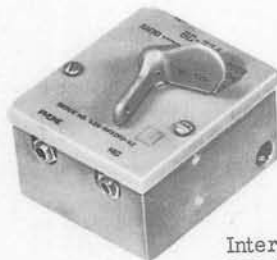
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6F8G		



Dynamotor Unit
PE-86-A



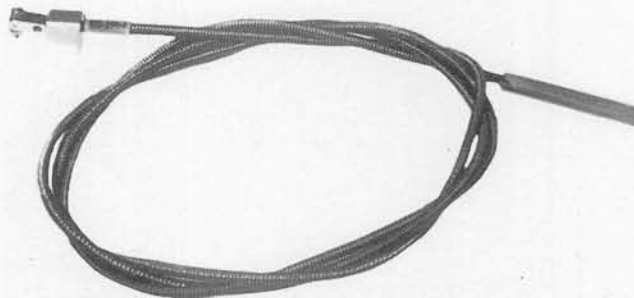
Interphone Amplifier
BC-347-C



Interphone Control Box
BC-334(Master)



Interphone Box
BC-335 (Remote)



Control Shaft
MC-166-A



Control Box
BC-327(Remote)

INTERPHONE EQUIPMENT RC-35

TOTAL WEIGHT 10 LBS.

Component	Nomenclature	Size	Weight
Interphone Box	BC-335	4" x 3" x 2"	*
Interphone Amplifier	BC-347-C	6" x 4" x 3"	2 Lbs.
Dynamotor Unit	PE-86- ()	5" x 1" x 5"	4 Lbs.
Interphone Control Box	BC-334	4" x 4" x 4"	1 Lb.
Control Box	BC-327	4" x 3" x 2"	*
Control Shaft	MC-166-A	6 feet long	*

* Less than one pound

and includes cords, plugs, and adapters.

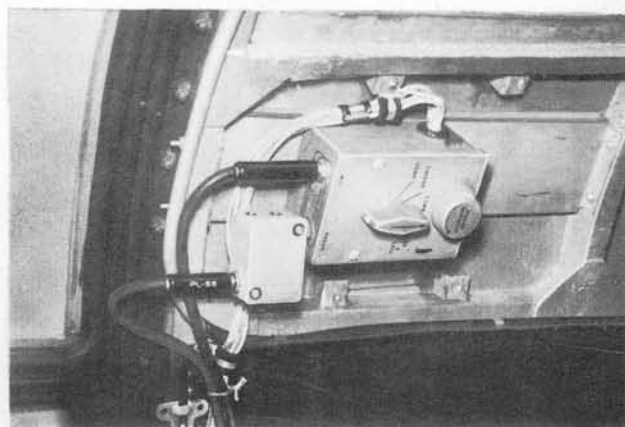
March 1945

Interphone Equipment RC-36 is designed for multiplace airplanes and provides intraplane communication between the various interphone stations. Switching facilities whereby the operation of two complete radio sets and one additional radio receiver can be partially controlled are also provided.

Normally, plate voltage (250 volts nominal) for operation of the interphone amplifier will be obtained from the dynamotor which is supplied from a 24 volt d.c. primary source. D.C. power to operate the equipment can be also obtained from any other source capable of furnishing 200 to 300 volts at 18 ma, such as a Dynamotor Unit PE-86-A, and 24 volts at 0.72 amperes, direct current.

Test equipment required for maintenance includes general purpose test equipment, such as multi-meter and tube testers.

Army Supply Program requirements as of 30 November were for 31,771 equipments for the calendar year 1944 and 13,227 for 1945.



Installation Photo of Jack Box BC-366, Waist Gunner's Position B-17

POWER INPUT	24 WATTS @ 28 Volts
POWER OUTPUT	7 WATT
FREQUENCY	AUDIO
TYPE OF SIGNAL	AUDIO

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6F8G		



Interphone Amplifier
BC-212-D



Dynamotor Unit PE-86-B



Jack Box
BC-366



Headset Adapter
MC-385-C

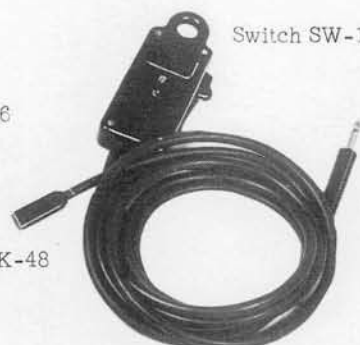
Plug PL-55



Cord CD-307-A

Jack JK-26

Jack JK-48



Cord CD-508

Switch SW-191-()

Plug PL-68

INTERPHONE EQUIPMENT RC-36

TOTAL WEIGHT 11 LBS.

Component	Nomenclature	Size	Weight
Interphone Amplifier	BC-347-M	6" x 4" x 3"	2 Lbs.
Dynamotor Unit	PE-86-()	5" x 1" x 5"	4 Lbs.
Jack Box	BC-366	5" x 1" x 3"	1 Lb.
Mounting	FT-486	4" x 3" x 1"	2 Lbs.
Headset Adapter	MC-385-C	2" x 1" x 2"	1 Lb.
Cord	CD-307-A	1 to 10 feet	
Cord	CD-508-A	9 feet.	1 Lb.
and includes microphone extension cord.			

March 1945

Interphone Equipment RC-45 is designed for multi-place aircraft provided with a 12-volt direct-current primary source. It provides intra-plane communications between the various interphone stations and switching facilities whereby the operation of two complete radio sets and one additional radio receiver can be partially controlled.

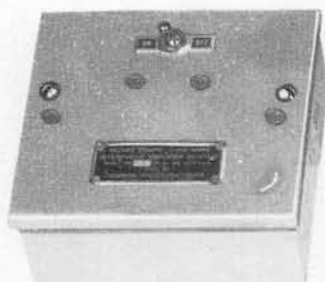
Normally, plate voltage for the interphone amplifier is obtained from the command set dynamotor, which is supplied from the 12 volt d.c. primary power source.

Test equipment required for maintenance includes general purpose test equipment such as multimeters and tube testers.

There were no Army Supply Program requirements as of 30 November 1944

POWER INPUT	5 WATTS @ 12 VOLTS
TYPE OF SIGNAL	VOICE

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6C5		

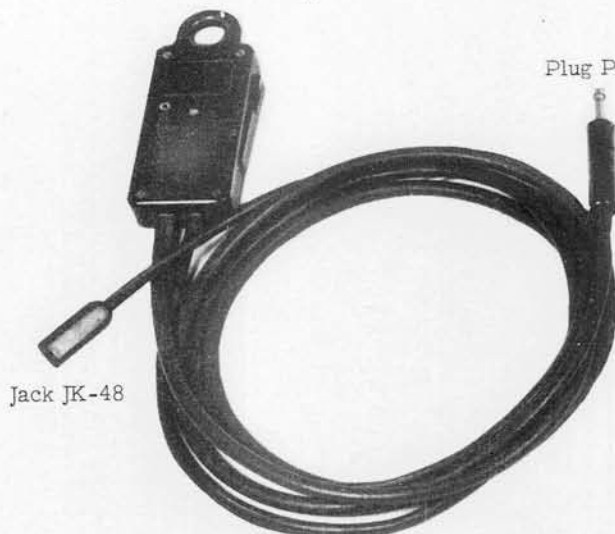


Interphone Amplifier
BC-212-D



Jack Box BC-366

Switch SW-191-()



Cord CD-508

Plug PL-68

Jack JK-26

Plug PL-55



Cord CD-307-A

INTERPHONE EQUIPMENT RC-45

TOTAL WEIGHT 7 LBS.

Component	Nomenclature	Size	Weight
Interphone Amplifier	BC-212	6" x 5" x 3"	2 Lbs.
Jack box	BC-366	5" x 4" x 3"	1 Lb.

including cords, plugs and 3 additional jack boxes.

March 1945

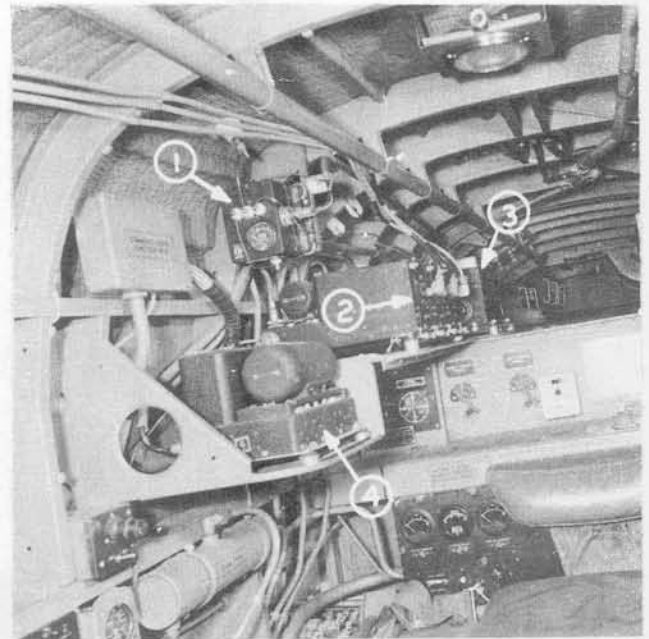
Radio Set SCR-274-N is an airborne command set designed with multiple units to provide a light weight installation for command communications. The receivers and transmitters are each interchangeable as a unit to cover the various frequency bands between 3.0 to 9.1 mc and 100 to 156 mc. Reception on the 90-550kc band is provided by one receiver.

Various combinations of receivers and transmitters are used in installations in all types of aircraft. Five transmitters and four receivers are provided.

Radio Set SCR-274-N has replaced Radio Sets SCR-() -183, SCR-() -283, and SCR-262-(), and is similar to Navy models ANB-5 and AN/ARC-4, and AN/ARC-5. It is being replaced, in turn, by a lighter, more efficient, eight-channel, crystal-controlled set, AN/ARC-3.

Test equipment required for maintenance includes Test Set RC-54-A and Test Set RC-55-A.

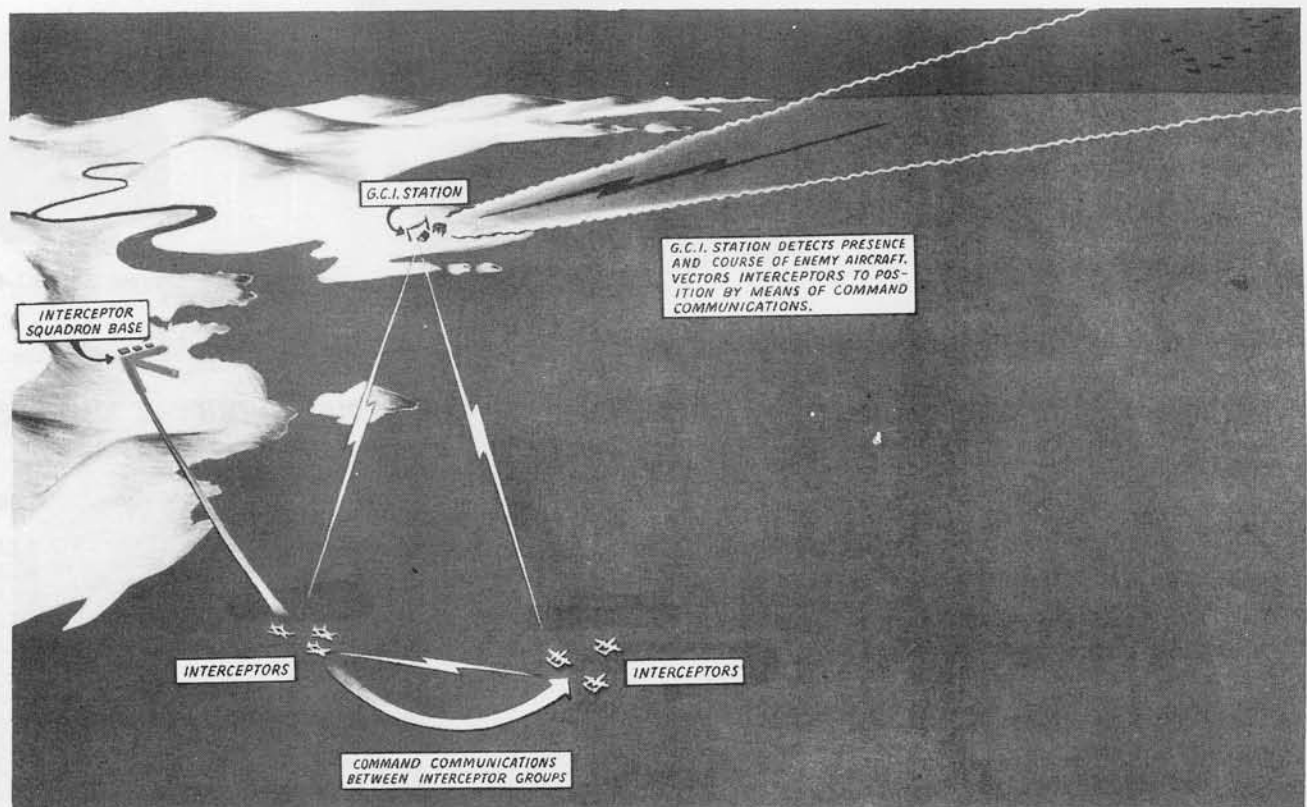
Army Supply Program requirements for this equipment are based on individual components.



Installation of SCR-274 N in B-25 aircraft. (1) Antenna Relay (2) Receivers (3) Transmitter (4) Modulator Unit

POWER INPUT	350 WATTS @ 28 VOLTS DC. (trans)
POWER OUTPUT	VOICE: 5-10 WATTS PEAK
	CW: 40 WATTS PEAK
RANGE	CW or TONE: 150 MILES
	VOICE: 75 MILES
TRANS. FREQ.	3-4 MC. (BC-696) 4-5.3 MC. (BC-457) 5.3-7 MC. (BC-458) 7.9.1 MC. (BC-459) 100-156 MC. (BC-950) CW, TONE, VOICE
REC. FREQ.	190-550 KC. (BC-453) 3-6 MC. (BC-454) 6-9.1 MC. (BC-455) 100-156 MC. (BC-942)

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
9	12SK7	9	1825
3	12K8	1	VR-150-30
3	12SR7	4	1826
3	12A6	4	1829
1	12J5GT		



Installed in many types of tactical aircraft to provide medium frequency command communication facilities, SCR-274N is a manually-operated equipment, which transmits in five bands and receives in four.

SCR-274 N

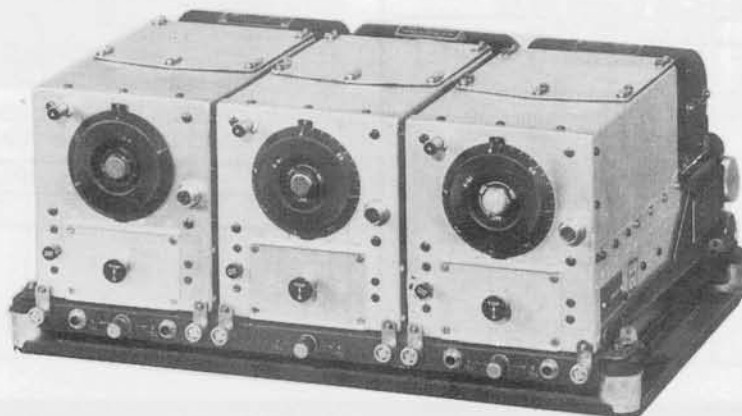
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Radio Transmitters BC-457, BC-458



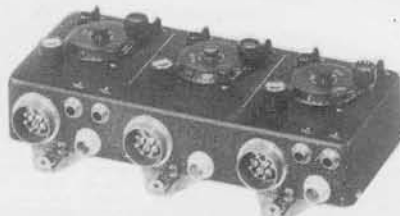
Modulator Unit BC-456



Radio Receivers BC-453, BC-454, BC-455



Antenna Relay Unit BC-442



Radio Control Box BC-450



Radio Control Box BC-451

RADIO SET SCR-274 N

TOTAL WEIGHT 79 LBS.

Component	Nomenclature	Size	Weight
Antenna Relay Unit	BC-442	7" x 6" x 7"	2 Lbs.
Modulator Unit	BC-456	8" x 9" x 10"	9 Lbs.
Radio Control Box	BC-451	3" x 4" x 5"	1 Lb.
Radio Transmitters	BC-696	9" x 5" x 12"	9 Lbs.
Radio Transmitters	BC-457	9" x 5" x 12"	9 Lbs.
Radio Transmitters	BC-458	9" x 5" x 12"	9 Lbs.
Radio Transmitters	BC-459	9" x 5" x 12"	9 Lbs.
Radio Receivers	BC-454	8" x 6" x 12"	10 Lbs.
Radio Receivers	BC-453	8" x 6" x 12"	10 Lbs.
Radio Receivers	BC-455	8" x 6" x 12"	10 Lbs.
Radio Receivers	BC-946	8" x 6" x 12"	10 Lbs.
Radio Control Box	BC-450	5" x 9" x 6"	3 Lbs.

plus cords, cables, plugs, etc.

Radio Set SCR-()-283 is intended for installation and operation in aircraft having 24-28 volt d-c power supply systems.

The frequency range of the receiver is 201-398 kc. and 2.5-7.7 mc. (Although it is technically possible to extend the ranges beyond these bands by the use of additional coil sets, the extension of the frequencies is not authorized for this radio set. Such additional coil sets have not been procured and cannot be furnished.)

The radio receiver may be used to receive modulated or damped-wave signals at any frequency within these ranges. Frequency range of the transmitter is 2,500 to 7,700 kilocycles, and it may be used to transmit unmodulated, tone-modulated, or voice-modulated signals.

Test equipment required for maintenance and tuning of the set includes Test Set I-56-K.

Army Supply Program requirements as of 1 December 1944 were 680 for the calendar year 1944.

POWER INPUT	300 WATTS @ 28 VOLTS
POWER OUTPUT	3 WATTS (peak)
FREQUENCY	201-398 KC 2500-7700 MC
TYPE OF SIGNAL	CW-MCW VOICE
RANGE	15 MILES

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	45 Special	1	37
2	10 Special	1	38
4	39/44		



Radio Transmitter
BC-AR-430



Dynamotor Unit
BD-AR-93



Radio Receiver
BC-AR-429



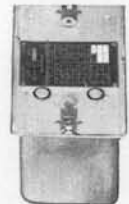
Coil Unit C-379



Radio Control Box
BC-AR-231



Antenna Switching Relay
BC-AR-408



Coil Set C-381



Radio Control Box
BC-AR-232

RADIO SET SCR-()-283

TOTAL WEIGHT 50 LBS.

Component	Nomenclature	Size	Weight
Dynamotor Unit	BD-()-93	5" x 8" x 8"	10 Lbs.
Radio Transmitter	BC-()-430	7" x 14" x 8"	11 Lbs.
Radio Receiver	BC-()-429	9" x 16" x 8"	12 Lbs.
Mounting	FT-100		2 Lbs.
Mounting	FT-99		2 Lbs.
Coil Unit	C-400	12" x 6" x 7"	3 Lbs.
Coil Set	C-396	7" x 4" x 4"	1 Lb.
Mounting	FT-141		
Coil Sets	C-401 to C-405	12" x 6" x 7" (each)	1 Lb. (each)
Radio Control Box	BC-()-232	4" x 5" x 3"	1 Lb.
Radio Control Box	PC-()-231	4" x 5" x 3"	1 Lb.
Mounting	FT-118		2 Lbs.
Antenna Switching Relay	BC-()-408	5" x 5" x 3"	2 Lbs.
Mounting	FT-118		2 Lbs.
Junction box	FM-()-172	6" x 3" x 8"	3 Lbs.

and includes cables, plugs, and adapters.
March 1945

Radio Set SCR-287 is an airborne liaison set used for plane-to-ground communication over ranges extending from 50 to several hundred miles. The set is similar to Radio Set SCR-187 with the exception of the 24-volt primary power supply employed in SCR-287.

Radio Transmitter BC-375 is designed for use in aircraft and other applications requiring a medium-power equipment having strength, light weight, flexibility, and portability. The equipment is designed to provide communication by voice, tone or continuous wave telegraphy over a frequency range of 150 to 12,500 kc. Suitable tuning equipment is provided in the radio transmitter to permit satisfactory operation over most of the frequency range when connected to the available airplane antenna. Antenna Tuning Unit BC-306 may be used to extend the range of antenna tuning for frequencies between 150 to 800 kc.

The transmitter and its associated equipment may be expected to give satisfactory service on CW at all altitudes up to 27,000 feet. On tone and voice, however, insulation breakdown may occur in Transmitter Tuning Unit TU-8-B above 25,000 feet and in Transmitter Tuning Unit TU-9-B above 19,000 feet. These altitude limitations may be exceeded slightly with the exercise of extreme caution in tuning and keeping the equipment clean. Satisfactory operation between 6,200 and 10,000 kc. may be obtained on CW alone at altitudes between 19,000 and 27,000 feet, and Transmitter Tuning Unit TU-26-B may be expected to give satisfactory performance at all altitudes up to 15,000 feet.

Radio Receiver BC-348 and Radio Receiver BC-224 are locally controlled, eight-tube, six-band superheterodyne receivers which cover the frequency ranges of 200-500 kc. and 1.5 to 18 mc. All receivers in the BC-348 series are interchangeable, as are all receivers in the BC-224 series. Each Radio Receiver BC-348 and Radio Receiver BC-224 are capable of voice, tone, or c-w reception with manual or automatic volume control. The total power consumed by these receivers is 56 watts from either a 28-volt or 14-volt d.c. source.

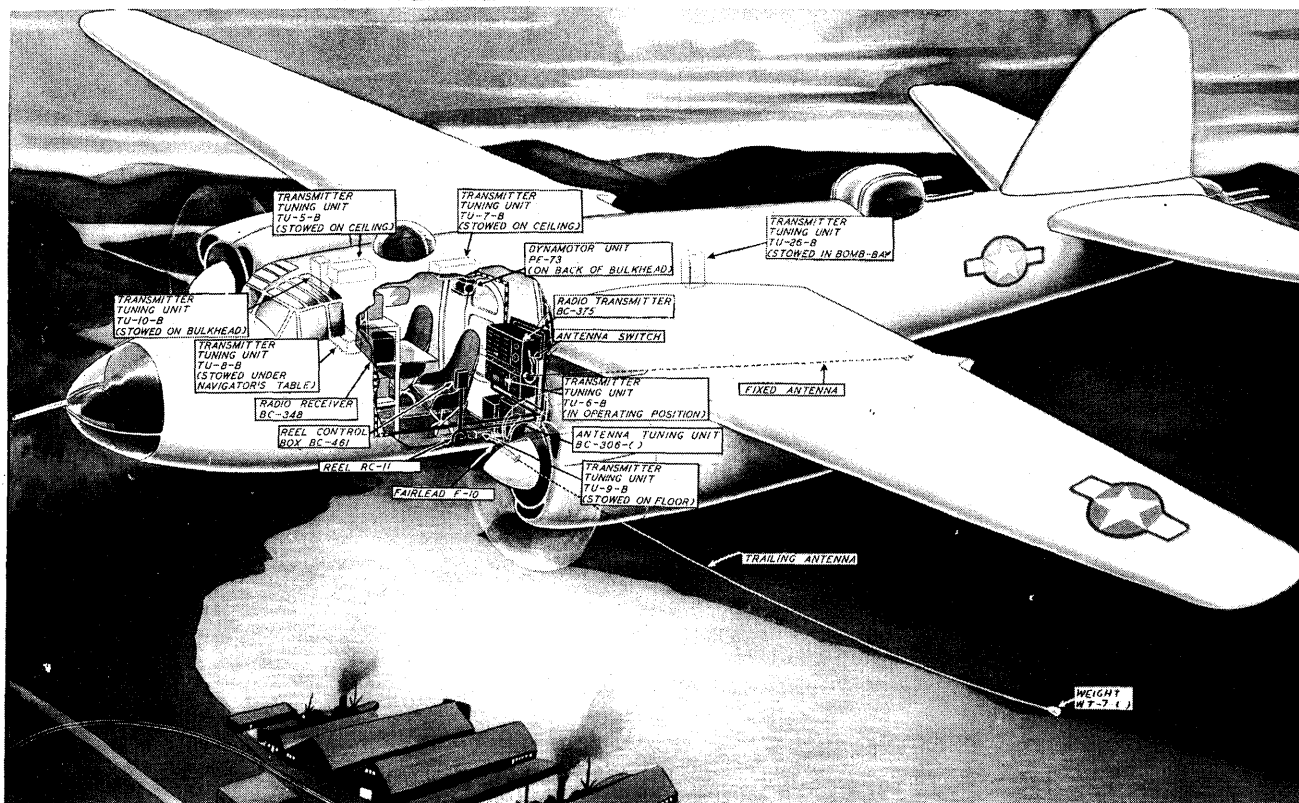
Electrically, the receiver comprises two stages of tuned radio frequency amplification preceding the first detector, a temperature-compensated heterodyne oscillator, three intermediate-frequency amplifier stages, a second detector and one stage of audio-frequency amplification with a transformer output circuit. A crystal band-pass filter and beat-frequency oscillator are also included. The former is for increasing selectivity and the latter for receiving c-w signals.

The frequency range of 1.5 to 18 mc. is covered in six bands which are under the control of a band-change switch. These frequency ranges are: 0.2 to 0.5 mc.; 1.5 to 3.5 mc.; 3.5 to 6.0 mc.; 6.0 to 9.5 mc.; 9.5 to 13.5 mc.; 13.5 to 18.0 mc.

General purpose test equipment only is required for maintenance. There were no Army Supply Program requirements as of 30 November 1944.

POWER INPUT	600-840 WATTS @ 24-28 VOLT D.C.
POWER OUTPUT	80 WATTS PEAK
TYPE OF SIGNAL	CW-TONE - VOICE
RANGE	APPROX. 800 MILES
RECEIVING FREQUENCY	200-500 KC., -18.0 MC. 6 BANDS
TRANSMITTING FREQUENCY	150 KC. TO 12.5 MC.

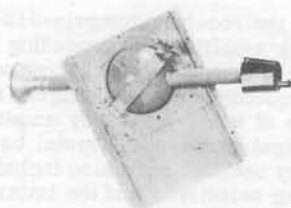
TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
4	211 SPC.	1	6F7
1	10	3	6K7
1	41	1	6J7
1	6C5	1	6B8



With its many components, including the numerous tuning units, Radio Set SCR-287 requires considerable installation space, as shown in above installation of SCR-287 in a B-26.

SCR-287

~~RESTRICTED~~



Fair Lead F-10



Reel Control Box BC-461



Weight WT-7-A



Reel RL-42-A



Dynamotor Unit PE-73-B



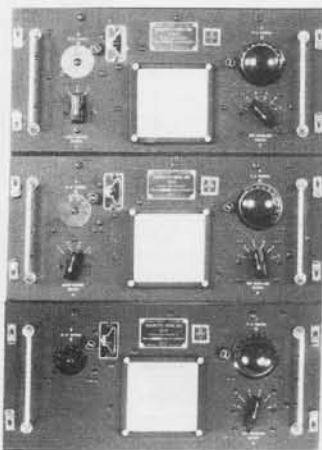
Radio Transmitter BC-385-C



Antenna Tuning Unit



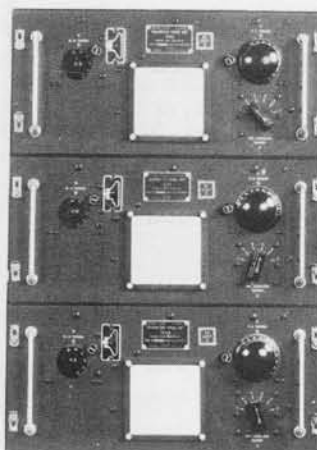
Radio Receiver BC-348-H



Tuning Unit TU-26-B

Tuning Unit TU-5-B

Tuning Unit TU-7-B



Tuning Unit TU-8-B

Tuning Unit TU-9-B

Tuning Unit TU-10-B

NOT SHOWN: Tuning Units TU-6-A and TU-22-A

RADIO SET SCR-287

TOTAL WEIGHT 275 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	BC-375-()	24" x 22" x 10"	49 Lbs.
Antenna Tuning Unit	BC-306-A, BC-306-B	18" x 10" x 10"	10 Lbs.
Reel	RL-42-A	6" x 9" x 5"	6 Lbs.
Reel Control Box	BC-461	4" x 6" x 3"	2 Lbs.
Radio Receiver	BC-348-()	18" x 10" x 11"	40 Lbs.
Tuning Unit	TU-26-B	17" x 8" x 9"	15 Lbs.
Tuning Unit	TU-5-B	17" x 8" x 9"	15 Lbs.
Tuning Unit	TU-7-B	17" x 8" x 9"	12 Lbs.
Tuning Unit	TU-8-B	17" x 8" x 9"	12 Lbs.
Tuning Unit	TU-9-B	17" x 8" x 9"	12 Lbs.
Tuning Unit	TU-10-B	17" x 8" x 9"	12 Lbs.
Tuning Unit	TU-6-B	17" x 8" x 9"	13 Lbs.
Tuning Unit	TU-22-A	17" x 8" x 9"	13 Lbs.
Dynamotor	PE-73-B	11" x 11" x 8"	39 Lbs.

and includes plugs, cables, adapters etc.

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SCR-522-A

Radio Set SCR-522-A is a VHF, 24-volt command set, identical with SCR-542, with the exception of the latter's 12-volt dynamotor. It is also similar to, and interchangeable with the British VHF Command Equipment, Type TR-1143.

Radio Set SCR-522-A is used in interceptor pursuit planes and provides communication between planes in flight, and between planes and the ground, the latter in conjunction with Ground Control Net System SCS-2 and SCS-3, and Control Net Addition SCS-4. The equipment is also used with bombers and transports for communication with escort fighter planes.

The equipment has four push button operated, crystal-controlled channels within the frequency range of 100 to 156 mc, with voice transmission on three channels and "pip squeak" transmission on the fourth channel. Reception is usually on the same four frequencies, three of which are ordinarily used.

Test equipment required for maintenance includes Test Equipments IE-36, IE-19 and IE-12.

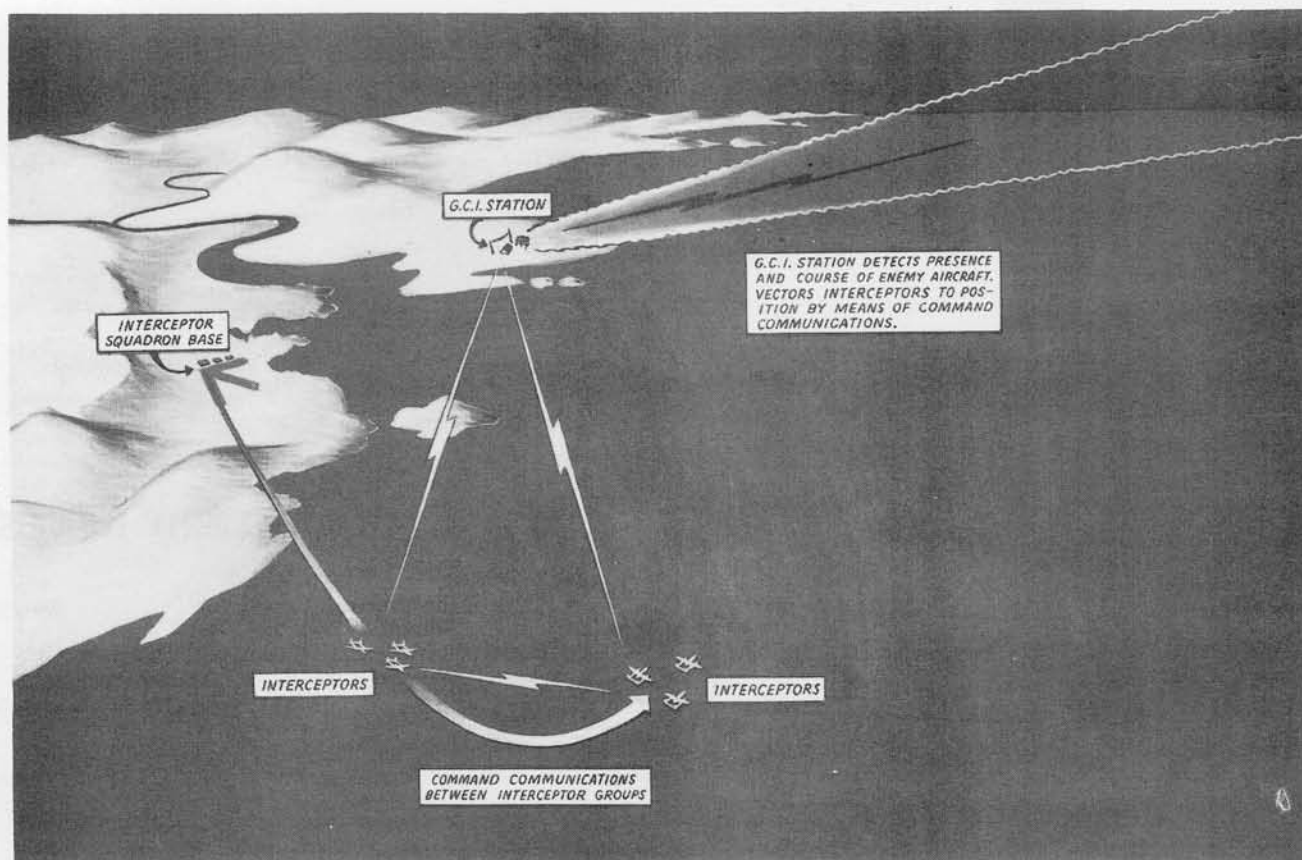
Army Supply Program requirements as of 27 December 1944 were 93,555 for the calendar year 1944, and 21,095 for 1945.



Radio Set SCR-522 installed in P-38E aft of pilot position

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	12J5GT	3	12SG7
1	12C8	2	832
1	9002	3	12A6
3	9003	1	6G6G
1	12AH7GT	2	6SS7

POWER INPUT	325 WATTS @ 28 VOLTS
POWER OUTPUT	6 WATTS
FREQUENCY	100-156 MC.
TYPE OF SIGNAL	VOICE
RANGE	130 MILES AT 10,000 FEET (LINE OF SIGHT)



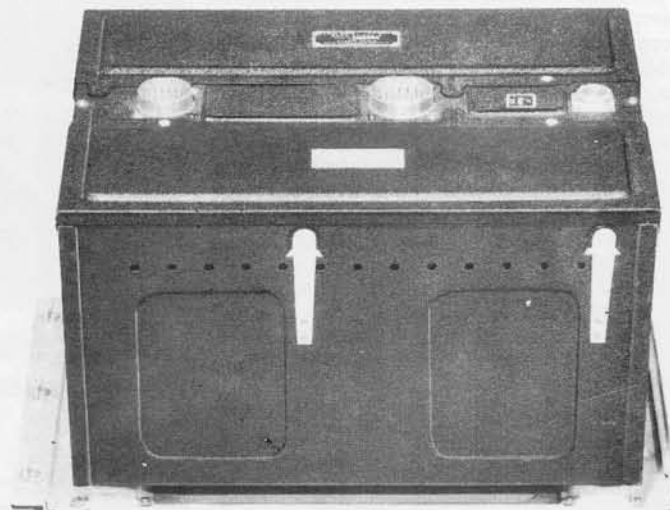
Installed in most types of tactical aircraft for providing command communication facilities, Radio Set SCR-522, capable of being operated on any one of four preset channels in the 100-156 mc. range, may be employed by pilots of fighter aircraft to receive information to aid in the interception of enemy planes.

SCR-522-A

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Antenna Mast AN-104



Radio Receiver BC-624-A
Radio Transmitter BC-625-A
In Case CS-80



Radio Control Box BC-602-A



Dynamotor Unit PE-94-C

RADIO SET SCR-522-A

TOTAL WEIGHT 125 LBS.

Component	Nomenclature	Size	Weight
Case	CS-80	17" x 13" x 11"	29 Lbs. with transmitter and receiver and rack.
Radio Transmitter	BC-625-A		
Radio Receiver	BC-624-A		
Rack	FT-244-A		
Crystal Unit	DC-11-A (8 each)	2" x 2" x 1"	*
Dynamotor Unit	PE-94-A	13" x 9" x 7"	37 Lbs.
Dynamotor Unit	PE-98-A	13" x 9" x 7"	37 Lbs.
Jack Box	BC-629-A (Pilot)	5" x 3" x 2"	*
Jack Box	BC-630-A (Pilot Crew)	5" x 3" x 2"	*
Jack Box	BC-631-A (Other Crew)	5" x 3" x 2"	*
Junction Box	JB-29-A	9" x 5" x 3"	2 Lbs.
Radio Control Box	BC-602-A	6" x 6" x 3"	3 Lbs.
and includes cables, plugs, connectors, and etc.			
* Less than 1 lb.			

~~RESTRICTED~~

SCR-585

Radio Set SCR-585 is a dual-purpose radio receiver and transmitter designed for two-way glider communication over distances up to one mile. It is a portable radio telephone, receiving and transmitting on the same frequency.

When operated in a glider, headphones and a throat microphone are used. While headphones are available for both pilot and co-pilot, provision is made for only one microphone.

By unbuckling the strap and buckle assembly, and pushing the release lever, Radio Receiver and Transmitter BC-721 is released and becomes a press-to-talk self-contained portable radio telephone resembling an ordinary hand telephone set. When operated in this manner, Radio Receiver and Transmitter BC-721 is automatically turned on by fully extending the self-contained telescopic antenna. No volume control is used with the radio receiver and transmitter when it is being operated as a portable radio telephone.

Radio Set SCR-585 is crystal controlled on both reception and transmission, and will operate over the frequency range of 3500 to 6000 kc. Each unit, however, is adjusted to operate at only one frequency at a time in this band. Reception and transmission are on the same frequency. The set can be made to operate at any frequency in the band by proper choice of crystals and coils. For correct performance, each set must have coils adjusted to the crystals used. The coils and crystal changes and their adjustments cannot be made by the operator, but are set by the manufacturer, or by maintenance men at authorized repair depots.

Test equipment required for maintenance includes test equipment IE-17-B.

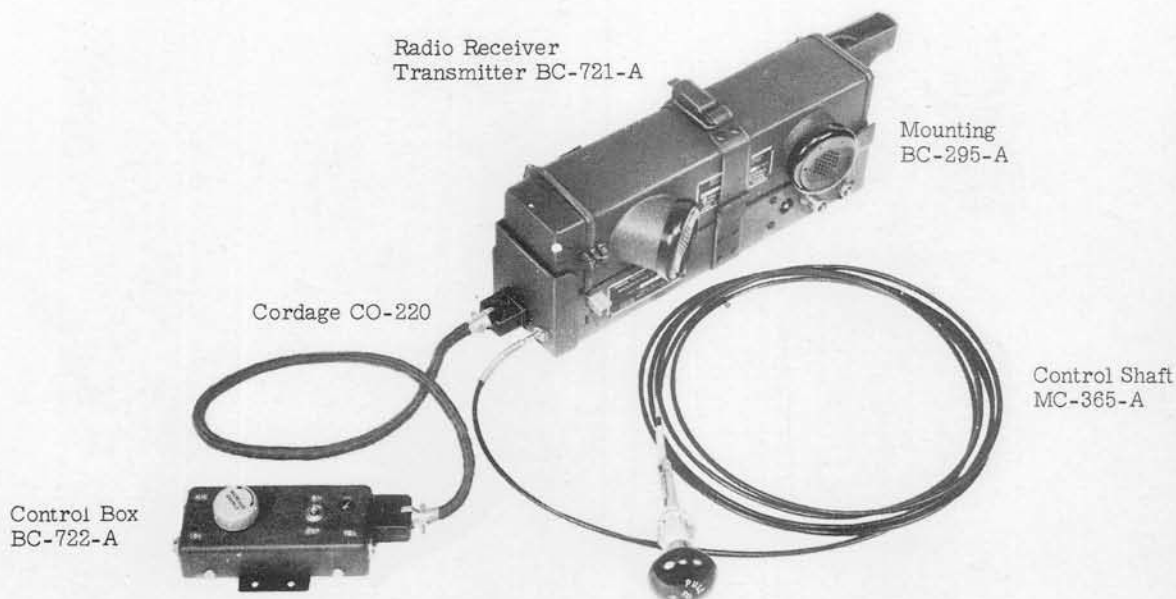
There were no Army Supply Program requirements as of 30 November 1944.



Installation of Control Box and "pull to talk" switch on instrument panel, pilots position in CG-4A glider.

POWER SUPPLY	BA-37 AND BA-38 BATTERIES
POWER OUTPUT	0.25 WATTS PEAK
FREQUENCY	ONE PRETUNED FREQ. IN 3500-6000 KC BAND
TYPE OF SIGNAL	VOICE
RANGE	GLIDER TO GROUND-5 MILES, GROUND TO GROUND, 1 MILE.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	IR5	2	3S4
1	IT4		



RADIO SET SCR-585

TOTAL WEIGHT 10 LBS

Component	Nomenclature	Size	Weight
Mounting	FT-295-()	5" x 5" x 17"	4 Lbs.
Radio Receiver & Transmitter	BC-721-()	4" x 6" x 17"	5 Lbs.
Radio Control Box	BC-722-()	2" x 3" x 6"	1 Lb.

March 1945

Radio Set SCR-624 is a VHF ground-air communication set which utilizes components of the SCR-522 airborne VHF command set and necessary auxiliary equipment for use as a ground station. It is especially designed for transportation by air with the major components contained in two foot-locker chests.

It is intended for use at advance landing fields to provide ground-air communications with aircraft equipped with SCR-522; the equipment may also be used to some extent for point-to-point communication on the ground. The SCR-522 four-channel crystal controlled transmitter and receiver is used in this equipment with the d.c. dynamotor unit replaced by a special a.c. rectifier, RA-62-C, operating from the gasoline engine-driven power unit PE-75-D. When available, a commercial 100-130 volt or 230-260 volt, 40 to 60 cycles, single phase power source can be used.

Remote control facilities except "on-off" switching are provided for operation up to a maximum of 500 feet. Remote send-receive operation is possible up to two miles where field or open wire lines are available. Channel selection is accomplished at the transmitter-receiver chest or at the remote control station up to 500 feet away.

Loudspeaker LS-10 is a part of this radio set. While the loudspeaker may not be required under certain conditions, it is particularly useful in tower control work.

Radio Set SCR-624-B is the same as SCR-624-A

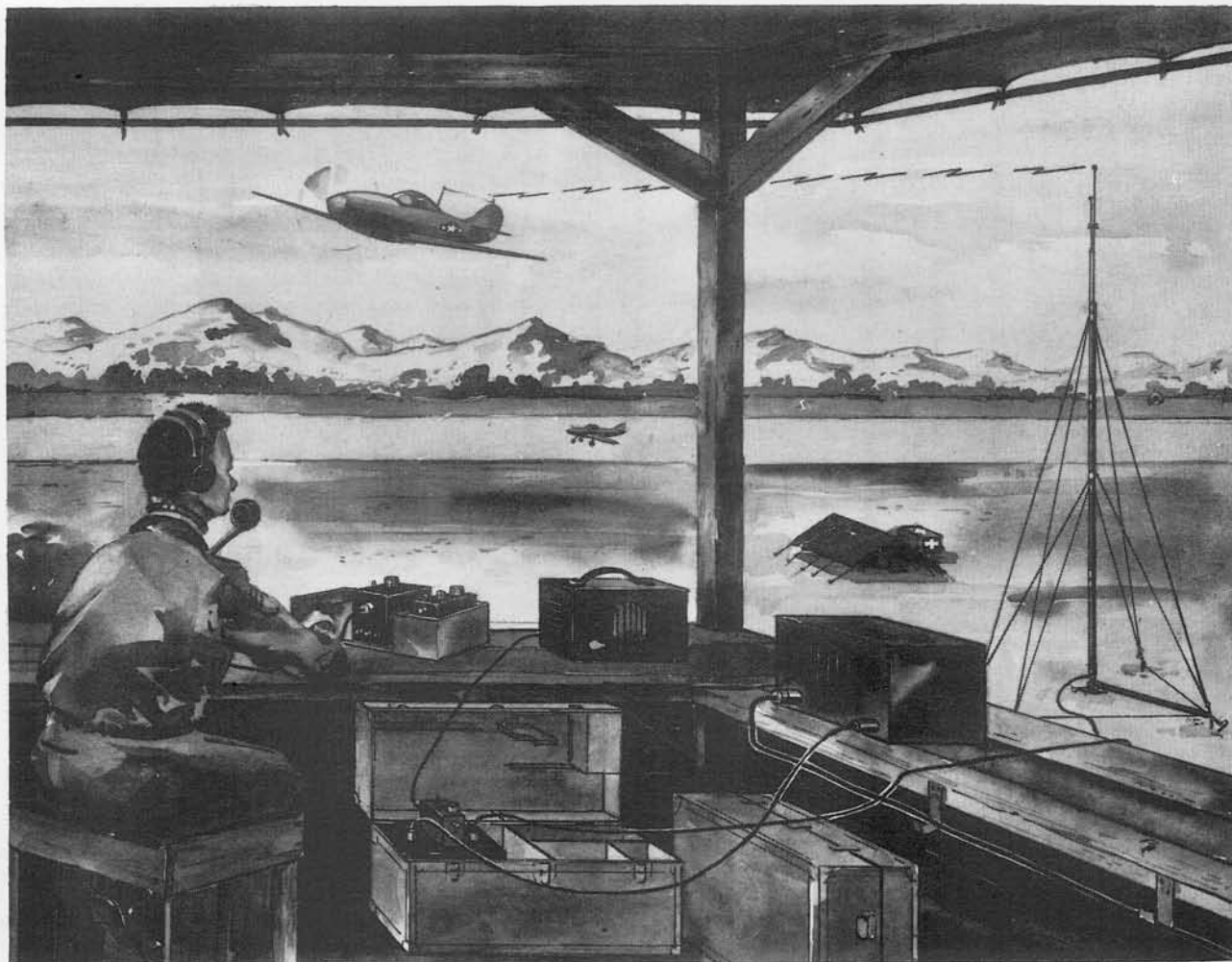
except CH-170 has been eliminated, and its contents have been placed in Chest CH-172-B and Chest CH-173-B.

Test Equipment required for the maintenance and tuning of SCR-624 includes Test Equipment IE-19 or Test Set I-139-A.

Army Supply Program requirements as of 1 December 1944 were 5,068 for the calendar year 1944 and 988 for 1945.

POWER INPUT	165 WATTS @ 110 VOLTS
POWER OUTPUT	8 TO 10 WATTS (max.)
FREQUENCY	100-156 MC
TYPE OF SIGNAL	AM-VOICE ON 4 PRE-SET CRYSTAL FREQUENCIES
RANGE	LINE OF SIGHT TO 100

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	832	2	12AH7GT
4	12A6	3	12SG7
1	6G6G	1	12H6
1	12C8	1	6SS7
1	9002	1	6X5GT/G
3	9003	2	5U4G



Radio Set SCR-624 provides an easily assembled short range ground - to air command communications facility for use at newly established landing strips and on captured enemy air fields.

SCR-624

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Chest CH-173-B
(Interior View Showing Equipment in Place,
Except Control Boxes).



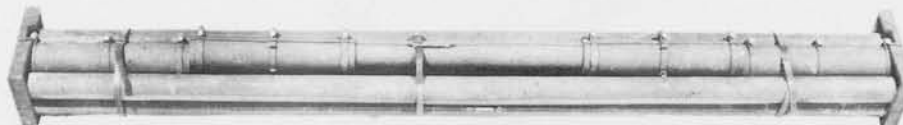
Chest CH-172-A
Completely Packed

Control Box
BC-1313

Control Box
BC-1314



Control Box
BC-1312



Antenna Mast MA-7-A
Crated for Shipment

RADIO SET SCR- 624

TOTAL WEIGHT 500 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	BC-625-AM		
Radio Receiver	BC-624-C		
Rack	FT-244-A		
Case	CS-80-C		
Mounting	FT-488		
Control Box	BC-1313		
Control Box	BC-1312		
Chest	CH-172-B	17" x 18" x 35"	205 Lbs.
Chest	CH-183-B	17" x 18" x 35"	124 Lbs.
Antenna	AN/94-C		
Mast	MA-7-A		152 Lbs.
Loudspeaker	LS-10-A		
Power Unit	PE-75-D		
Rectifier	RA-62-C		

and includes cords, set of metal stakes, kit of tools and spare tube boxes.
Weight of chests include weight of components packed in each.

March 1945

T E S T
E q u i p m e n t

Test Equipment AN/AIM-1 is a Class A special test equipment designed to test installations of Interphone Equipment AN/AIA-1 and AN/AIA-1A in glider, tow plane and tow rope. It consists of Test Set TS-161/AI, Test Set TS-162/AI, Test Set TS-163/AI and Carrying Case CY-112/AIM-1.

Test Set TS-161/AI is a portable test set employed as a visual indicating device for checking the continuity of the conductors on a tow rope prior to attachment to glider and tow plane.

Test Set TS-162/AI is a portable test set for checking the wiring and operation of the glider components installed in gliders.

Test Set TS-163/AI is a portable test set for checking the wiring and operation of the two plane com-

ponents installed in a tow plane.

Carrying Case CY-112/AIM-1 has a removable lid with carrying handle, and fasteners on two sides. It is used to carry Test Sets TS-161/AI, TS-162/AI and TS-163/AI.

No test equipment is required for maintenance.

There were no Army Supply Program requirements as of 30 November 1944.

POWER INPUT	BATTERIES TS-161/AI-2-BA-30, TS-162/AI-2-BA-30.
FREQUENCY	AUDIO FREQUENCIES
TYPE OF SIGNAL	VOICE



Carrying Case
CY-112/AIM-1



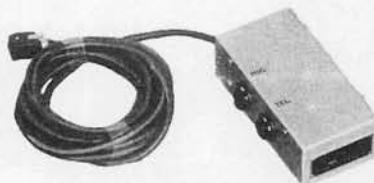
Test Set TS-161/AI



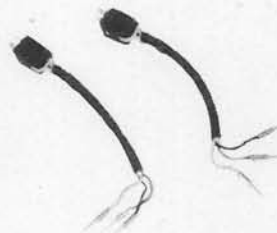
Adapter U-14/AI



Test Rod M-143/AI



Test Set TS-162/AI



Cord CX-151/AI



Test Set TS-163/AI

TEST EQUIPMENT AN/AIM-1

TOTAL WEIGHT 8 LBS.

Component	Nomenclature	Size	Weight
TEST SET TS-161/AI			
Test Set	TS-161/AI	6'' x 4'' x 2''	1 Lb.
Adapter	U-14/AI		*
Test Rod	MX-143/AI		*
and includes batteries*, pilot light and plug.			
TEST SET TS-162/AI			
Test Set	TS-162/AI	6'' x 4'' x 2''	1 Lb.
Cord	CX-151/AI		Length 5 inches
and includes batteries*, jacks, transformer, cordage and plug.			
TEST SET TS-163/AI			
Test Set	TS-163/AI	3'' x 4'' x 2''	*
Cord	CX-151/AI		5''
and includes jacks, cordage and plug.			
Carrying Case	CY-112/AIM-1	8'' x 7'' x 6''	4 Lbs.

*Batteries not furnished

*Less than one pound

March 1945

~~RESTRICTED~~

AN/ARM-1

Radio Test Set AN/ARM-1 is Class B special test equipment for Radio Set AN/ARC-3 consisting of Test Unit TS-178/ARM-1, Power Junction Box J-68/ARC-3, Dynamotor Units DY-21/ARC-3 and DY-22/ARC-3, Chest CY-146/ARM-1, Control Box C-118/ARC-3 and associated cords and tools.

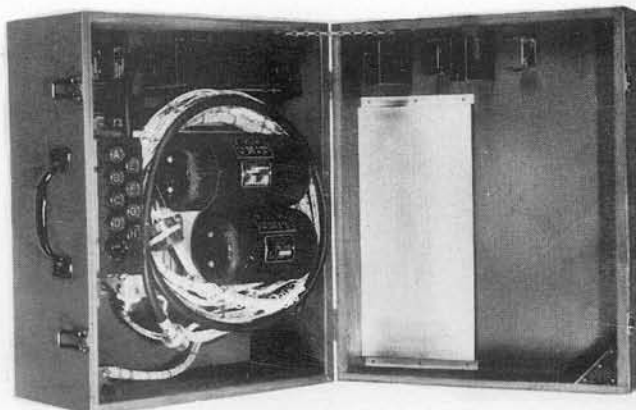
Test Unit TS-178/ARM-1 provides means for measuring the various grid currents and voltages necessary for completely testing and aligning Radio Transmitter T-67/ARC-3 and Radio Receiver R-77/ARC-3. It consists of a case containing a single meter, a rotary selector switch with eight positions and necessary shunt and series resistors. The unit has a permanently attached 5 foot cord with Plug PL-152 on the end for connection to the transmitter or receiver.

Control Box C-118/ARC-3 is a push button control box for remotely controlling the operation of both the receiver and transmitter. It contains eight channel selection push buttons, one "Off" button, on phone jack and one microphone jack. Channel selection buttons have on top letters, A to H inclusive, filled with fluorescent paint.

Adapter MX-293/ARM-1 is a device for connecting a 12 mc. signal generator to the mixer grid of Radio Receiver R-77/ARC-3.

Dynamotors DY-21/ARC-3 and DY-22/ARC-3 are used to supply plate currents to the transmitter and receiver respectively.

Shunting Unit MX-294/ARM-1 is an IFF shunting



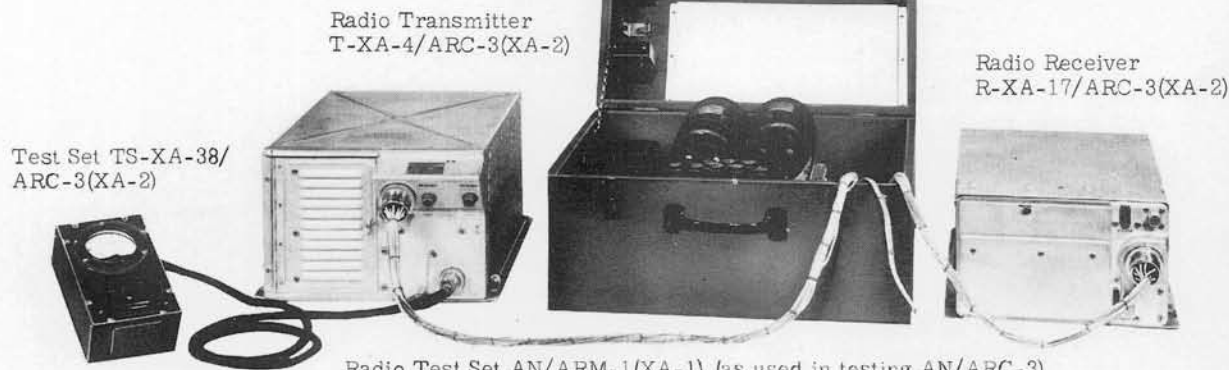
Radio Test Set AN/ARM-1 (XA-1)

unit used in the alignment of the IFE stages of Radio Receiver R-77/ARC-3. It consists of a condenser and resistor in series.

No test equipment is required for maintenance.

Development of this equipment has been completed and production is expected to start in February 1945. Army Supply Program requirements for AN/ARM-1 as of 30 November 1944 were 2,500 for the calendar year 1945.

POWER INPUT	28 VOLTS D.C.
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Radio Test Set AN/ARM-1 (XA-1) (as used in testing AN/ARC-3)

RADIO TEST SET AN/ARM-1

TOTAL WEIGHT 40 LBS.

Component	Nomenclature	Size	Weight
Test Unit	TS-178/ARM-1	2" x 6" x 3"	2 Lbs.
Power Junction	J-68/ARC-3	4" x 10" x 9"	6 Lbs.
Mounting	MT-236/ARC-3	9" x 11" x 2"	1 Lb.
Dynamotor Unit	DY-21/ARC-3	4" x 8" x 4"	9 Lbs.
Dynamotor Unit	DY-22/ARC-3	4" x 8" x 4"	5 Lbs.
Control Box	C-118/ARC-3	6" x 7" x 3"	2 Lbs.
Mounting	FT-240-A	1" x 6" x 7"	1 Lb.
Shunting Unit	MX-294/ARM-1	2" x 1" x 1"	1 Lb.
Adapter	MX-293/ARM-1	1" x 1" x 1"	1 Lb.
Shorting Plug	U-30/ARM-1	2" x 2"	
Alignment Tool	MX-174/ARM-1		
Chest	CY-146/ARM-1	10" x 15" x 17" (filled)	55 Lbs.
Tuning Wand	MX-173/ARM-1		
Cord	CX-214/ARM-1	12 feet long	
Cord	CX-215/ARM-1	5 feet long	
Cord	CX-216/ARM-1	5 feet long	
Cord	CX-217/ARM-1	10 feet long	

and includes adapter and relay forming tools.

March 1945

Test Set I-56 is a universal, general purpose radio test set which consists of a Carrying Case CS-130 containing the following major units: Voltohmmeter I-166, Test Unit I-176 and Tube Tester I-177.

Voltohmmeter I-166 is a general utility test instrument and includes the necessary leads. It provides for the measurement of the following:

AF output voltage 0-1.5-5-15-50-150(4000 ohms)
AF output voltage 0-5-15-30- (300 ohms)
AC volts 0-500 (1000 ohms/volts)
DC volts 0-5-15-50-150-500-1500(1000 ohms/volt)
Ohms 0-1000-10,000-100,000-1,000,000

Test Unit I-176 is used in free point testing of radio equipment and includes the necessary leads. It provides for the measurement of the following:

DC volts 0-5-25-100-250-1000-5000(200 ohms/volt)
AC volts 0-5-25-100-250-1000 (1000 ohms/volt)
DC current 0-1.5 amperes
AC current 0-0.5-1-5-10 amperes
Ohms 0-1000-100,000-10,000,000
DC volts 0-5-25-100-250-1000(1000 ohms/volt)
DC milliamperes 0-1-10-100-500 ma
DC microamperes 0.50

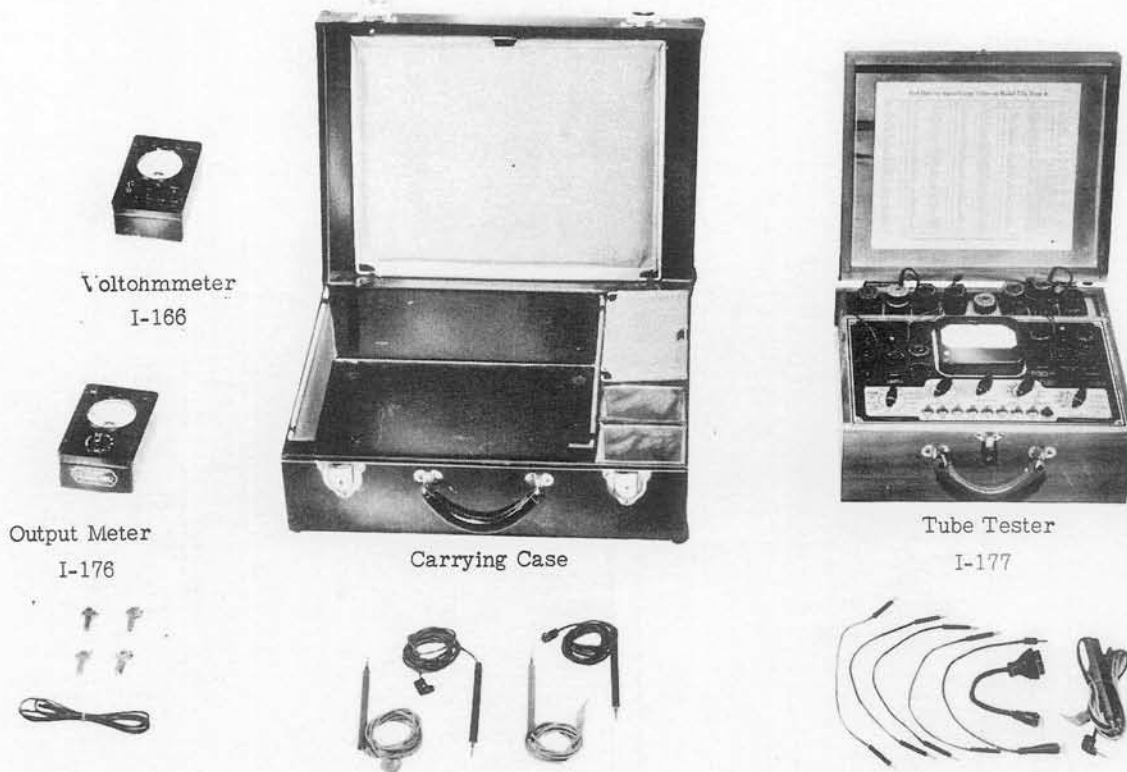
Tube Tester I-177 is a portable tube tester of the dynamic of mutual transconductance type capable of operation on 110 and 220 volts 50-60 cycles a.c. The tester has a three inch circular meter in its own case and will check practically all tubes in current use by the Army under 10 watts plate dissipation.

This test set differs from previous versions of I-56 in that it does not include an analyzer and it has a smaller case. The tube tester is also of the mutual conductance type.

Army Supply Program requirements as of 1 October 1944 were 11,818 for the calendar year 1944 and 6,513 for 1945.

POWER INPUT	I-177: 110 VOLTS. 60 CYCLE AC. I-176; I-166 SELF CONTAINED BATTERIES
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TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	83	1	5Y3GT/G



TEST SET I-56

TOTAL WEIGHT 60 LBS.

Component	Nomenclature	Size	Weight
Voltohmmeter	I-166	7" x 6" x 6"	5 Lbs.
Test Unit	I-176	12" x 8" x 6"	11 Lbs.
Tube Tester	I-177	16" x 8" x 6"	15 Lbs.
Adapter	M-418	3" x 3" x 2"	1 Lb.
Minature Tube Pin Die.	TL-220	Height 2" x Diam. 2"	1 Lb.
Minature Tube Socket Tool	TL-219	Height 2" x Diam. 1"	1 Lb.
Tube Cap Lead			
1 set Data Card (mounted on inside cover)			

and includes test leads

March 1945

Signal Generator I-72 is a portable test equipment, incorporating a radio frequency oscillator, for use in aligning radio sets. It has a range of 100 kc. to 32 mc. in five bands with 400 cycle modulation. The RF output voltage which is uncalibrated with the attenuator set for maximum is over 30,000 microvolts on all bands except in the region of 10,000 to 20,000 kc. where the maximum obtainable output may be 10,000 microvolts or over. It operates on 110-125 volt, 60 cycle a.c. and is contained in a metal cabinet. A shielded output lead and a spare fuse are mounted on clips attached to the inside of the cover. The generator consists of a tuned plate oscillator, modulator, attenuators, and filament and plate supply.

The following types of signals are available and may be selected by means of a switch on the front panel: Radio frequency, radio frequency 30 percent modulated and 400 cycles audiofrequency. Two knobs control the output—one, a four step course control; the other, a continuously variable potentiometer.

I-72 is used for the general alignment of RF and

IF stages and for rough frequency checks of various radio sets. It is a part of Maintenance Set RC-30 and Test Equipment IE-26 and IE-27.

No test equipment is required for maintenance.

There were no Army Supply Program requirements as of 30 November 1944.

POWER INPUT	115 VOLTS, 60 CPS
FREQUENCY	100 KC TO 32 MC IN 5 BANDS
TYPE OF SIGNAL	CW; MCW; 400 CYCLE AM.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	76	1	6J5GT/G
1	80		



Signal Generator I-72-()

SIGNAL GENERATOR I-72

TOTAL WEIGHT 23 LBS.

Component	Nomenclature	Size	Weight
Signal Generator	I-72-()	10" x 16" x 7"	20 Lbs.

and includes plus cords, plugs, tubes, etc.

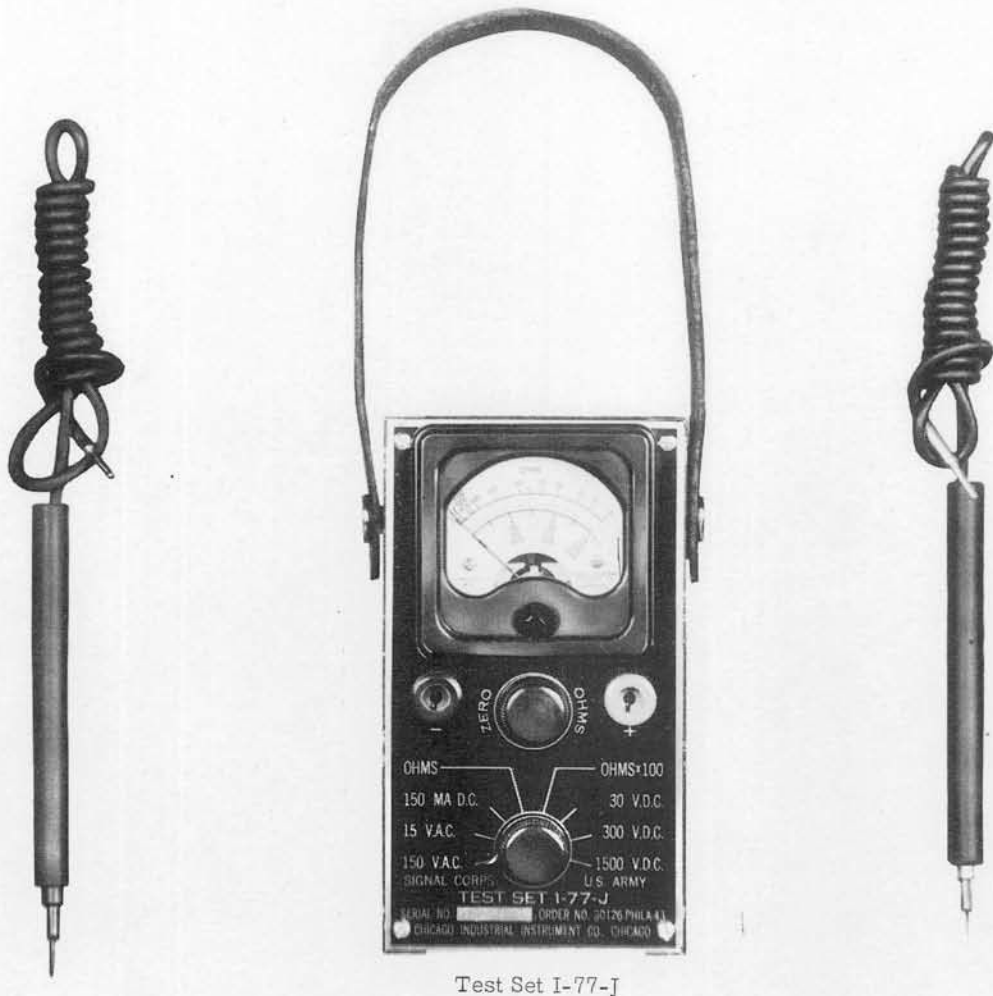
March 1945

Test Set I-77 is a pocket-size, multi-range meter for rapid testing of voltage, current and resistance. It provides for direct reading over all ranges by means of the various scales printed directly on the face of the meter. Selection of the various measurement ranges is made by means of a single knob which operates a two-pole, light-position switch. A second knob is provided for obtaining zero adjustment of the indicating needle when measuring resistance. Red and black test leads and a leather carrying strap are provided.

This test set is a part of Radio Set SCR-277. Multimeter TS-297/U; now under development, is to replace Test Set I-77 for AAF use. It differs from I-77 in that the instrument is hermetically sealed, has greater ranges, and the selector switch is omitted.

No test equipment is required for maintenance. There were no Army Supply Program requirements as of 30 November 1944.

POWER INPUT	Battery: 1-BA-42, 1.5 volts
RANGE: AC. Voltage	0-150 Volts (1000 ohms per volt)
	0-15 Volts (1000 ohms per volt)
DC. Voltage	0-30 Volts (1000 ohms per volt)
	0-300 Volts (1000 ohms per volt)
	0-1500 Volts (1000 ohms per volt)
Current DC.	0-150 Milliampères
Resistance	0-3000 ohms (35 ohms 1/2 scale)
	0-300,000 ohms (3500 1/2 scale)
SENSITIVITY	1000 Ohms/volt



Test Set I-77-J

TEST SET I-77

TOTAL WEIGHT 2 LBS.

Component	Nomenclature	Size	Weight
Test Set 1 set test leads	I-77	5" x 3" x 3"	1 Lb. *

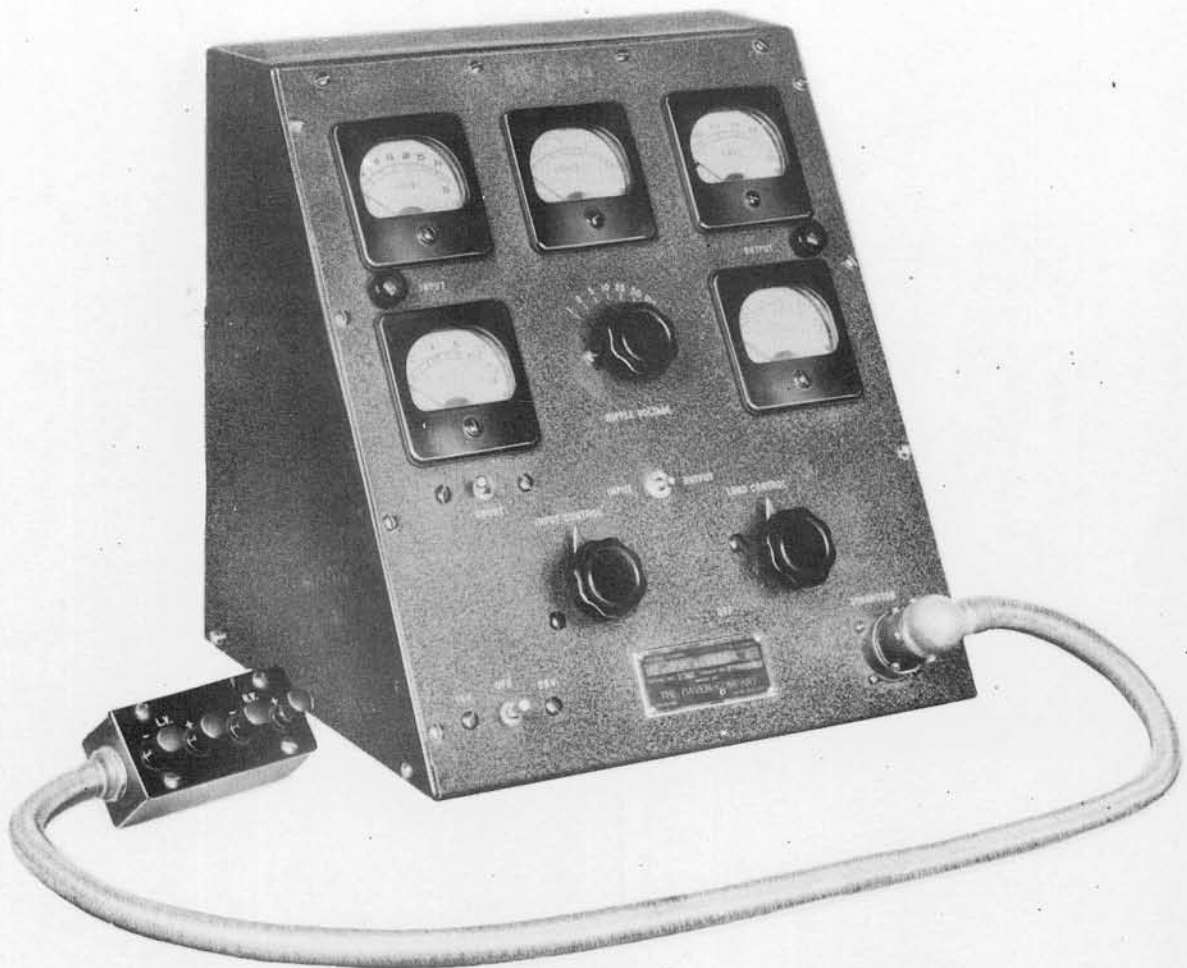
* Less than one pound.
March 1945

Test Set I-83 consists of a primary voltage selector, meters for both input and output current and voltage, selector for input ammeter, input series rheostat and output local rheostat. This test set is used with various radio sets for measuring input currents and voltage, output current voltage and input and output ripple voltage of various 12 and 24 volt dynamotors and dynamotor units.

No test equipment is required for maintenance.

Army Supply Program requirements as of 1 October 1944 were 1,370 I-83 for the calendar year 1944.

POWER INPUT	14 AND 28 VOLTS DC
RANGE	CURRENT 0-250-MA DC.
	VOLTAGE 0-10 AMPERES DC.
	0-2 VOLTS DC.
	0-35 VOLTS DC.
	0-500 VOLTS DC.



Test Set I-83-()

TEST SET I-83

TOTAL WEIGHT 24 LBS.

Component	Nomenclature	Size	Weight
Test Set	I-83-()	13" x 13" x 11"	23 Lbs.
and includes cords and plugs.			
March 1945			

Test Set I-139, which has been designated TS-60/U, consists of a 2 1/2 inch diameter 0 to 1 milliampere d.c. meter inclosed in a container to which is attached a 5 foot cable with a special plug. It is capable of measuring current in five positions for radio transmitters, one position for receivers and two positions in Signal Generator I-130. The combined series resistance of the meter and resistor is 75 ohms. It is used for general test purpose and to permit proper tuning of various radio equipments.

This test set is also used to measure RF output when used with Pickup Assembly TS-131/AP for tuning various RCM equipments. By the use of external multi-

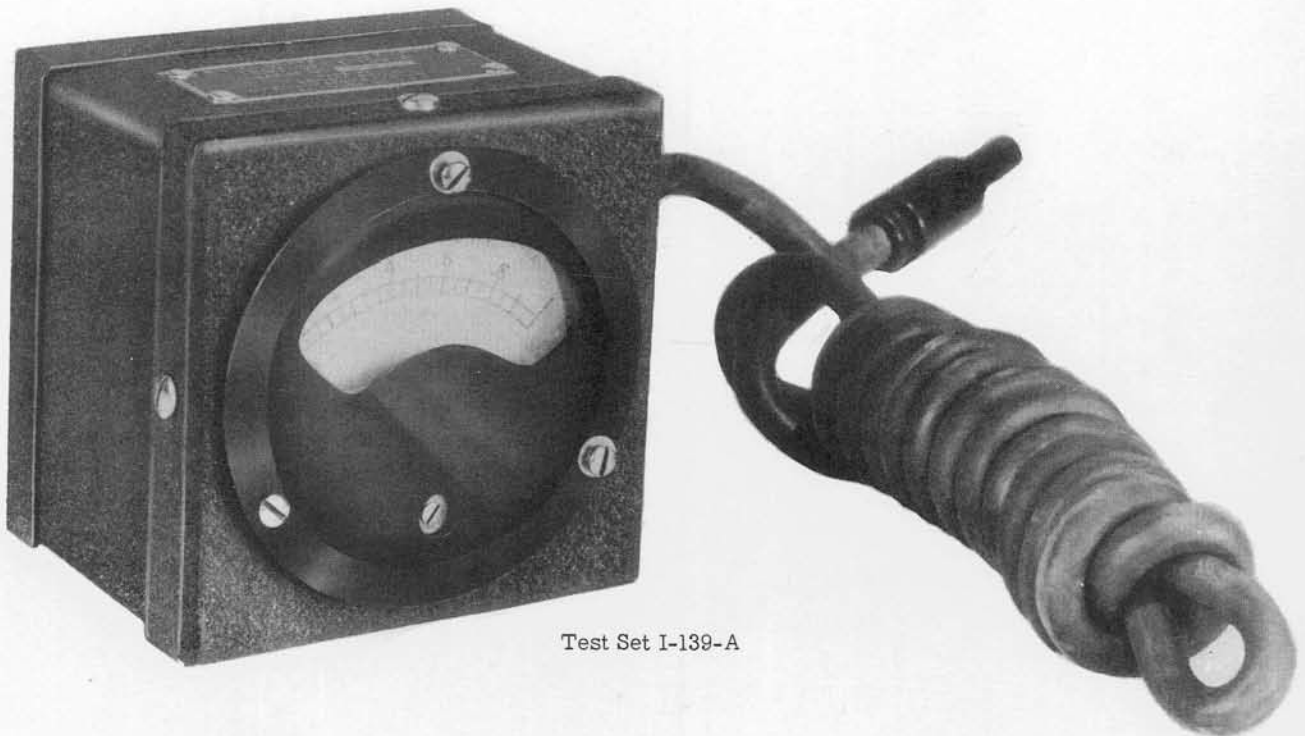
pliers, currents and voltage measurements may be made on various equipments.

No test equipment is required for maintenance.

This test set may be used separately or as a part of Test Equipment IE-19.

Army Supply Program requirements as of 30 November 1944 were for 20,387 for the calendar year 1944, and 2,135 for 1945.

RANGE	0-1 MILLIAMPERE D.C.
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Test Set I-139-A

TEST SET I-139

TOTAL WEIGHT 2 LBS.

Component

Nomenclature

Size

Weight

Test Set
March 1945

I-139-A

4" x 4" x 4"

2 Lbs.

Test Equipment IE-12, used in testing, tuning, aligning and servicing Radio Sets SCR-522 and SCR-542, is primarily designed for bench servicing at higher echelon repair sections. When completely assembled, the test equipment simulates the actual installation of the radio set in the airplane. Since the equipment includes a complete SCR-522 with Dynamotor PE-94, a means of checking by comparison is also available for individual assemblies, components and units of SCR-522 or SCR-542 on test. This test set also permits alignment of the IF stages which cannot be accomplished by Test Equipment IE-19.

Signal Generator I-96 is used in tuning and aligning BC-624 and BC-625. The wooden carrying case, which contains all the components of the signal generator, is divided into six compartments, five of which are shielded.

Field Strength Meter I-95 is an uncalibrated vacuum tube voltmeter designed to indicate the relative field strength and frequency of the radiation from the antenna of SCR-522 and SCR-542. The instrument may also be used to indicate modulation of the carrier. The field strength meter consists of a case on which the front panel and rear cover are mounted. A telescopic antenna, a front panel guard and all the electrical components (except the batteries) of the field strength meter are mounted on the front panel.

The transmitter-receiver assembly consists of Case CS-80-A which contains Rack FT-244-A, Radio Transmitter BC-625 and Radio Receiver BC-624. When properly interconnected to the other components of Test Equipment IE-12 this assembly provides transmission or reception of

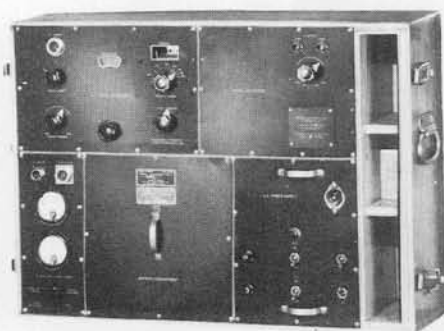
amplitude-modulated RF energy on any one of four crystal-controlled frequencies within the range 100-156 mc. Only voice communication facilities are available, but continuous audio-tone modulation is also provided. The AF amplifier portion of BC-624 is so designed that interphone communication between two or more stations is possible.

Both the transmitter and receiver are simultaneously switched to any one of the four available pre-set crystal-controlled channels whenever the appropriate channel-selector push button is pressed. Remote control only is provided.

Army Supply Program requirements as of 30 November 1944 were 1,711 equipments for the calendar year 1944 and 456 for 1945.

TYPE OF SIGNAL	VOICE; MCW
RANGE	0-1 MA, D.C.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	832	7	9003
4	12A6	2	12AH7GT
1	6G6G	3	12SG7
1	6SS7	1	OD3/VR-150
1	12H6	1	5Y3GT
1	12C8	1	1S5
3	9002		



Signal Generator I-96-A



Special Tool Set



Field Strength Meter I-95-BM



Microphone Adapter M-299



Microphone T-17



Headset HS-33

PHOTOGRAPHS OF SCR-522 COMPONENTS LISTED BELOW SHOWN ON PAGE "SCR-522"

TEST EQUIPMENT IE-12,

TOTAL WEIGHT 200 LBS.

Component	Nomenclature	Size	Weight
Radio Transmitter	BC-625-AM	16" x 9" x 6"	18 Lbs.
Radio Receiver	BC-624-C	16" x 9" x 6"	18 Lbs.
Rack	FT-244-A	17" x 13" x 3"	7 Lbs.
Case	CS-80-C	17" x 13" x 11"	4 Lbs.
Radio Control Box	BC-602-B	6" x 6" x 3"	3 Lbs.
Dynamotor Unit	PE-94-C	13" x 9" x 7"	37 Lbs.
Jack Box	BC-631-B	4" x 3" x 2"	*
Field Strength Meter	I-95-BM	7" x 9" x 7"	11 Lbs.
Signal Generator	I-96-A	27" x 19" x 10"	82 Lbs.
Mounting	FT-488	19" x 13" x 1"	2 Lbs.
Mounting	FT-498	13" x 9" x 1"	*
T Junction Box	JB-29-A	4" x 3" x 3"	3 Lbs.
Special Tool Set		8" x 8"	*
Headset	HS-33		1 Lb.
Microphone Adapter	M-299	4" x 3" x 2"	1 Lb.
Microphone	T-17		*

and includes cords, plugs, and receptacles.
*less than one pound.

Test Equipment IE-19 is a portable test equipment for use by tactical organizations in aligning the channels in Radio Sets SCR-522 and SCR-542. The test equipment is especially designed for use inside or near the aircraft in which the radio sets are installed. It consists of Signal Generator I-130, Test Set I-139, Field Strength Meter I-95 and Chest CH-93-A.

Signal Generator I-130 is used in tuning Radio Transmitter BC-625 and Radio Receiver BC-624 and produces tone-modulated signals in the frequency range 100-156 mc. The modulation frequency is 1000 cycles. The output, which is uncalibrated, is variable from nearly zero to more than 5000 microvolts.

Test Set I-139 is a 0-1 milliampere d.c. meter designed for measuring current in five positions in BC-625, one position in BC-624 and two positions in I-130. The combined series resistance of the meter and resistor is 75 ohms.

Field Strength Meter I-95 is an uncalibrated vacuum-tube voltmeter designed to indicate the relative field strength and frequency of the radiation from the antenna of SCR-522. This instrument may also be used to indicate modulation of the carrier. The field strength meter consists of a metal case on which the front panel and rear

cover are mounted. The total power consumption of I-95 is 0.87 watts.

Chest CH-93-A is designed for use in storing or transporting IE-19. Each component of the test equipment fits into a separate compartment and requires no special packing in the chest.

Notest equipment is required for maintenance.

Army Supply Program requirements as of 29 December 1944 were 4,093 for the calendar year 1944, and 1,552 for 1945.

FREQUENCY	100-156 MC.
POWER SOURCE	DRY BATTERIES
METER ACCURACY	± 3%
METER MOVEMENT	0-1 MA.

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	I-130-()	1	I-95-()
3	9002		1S5
	9003		



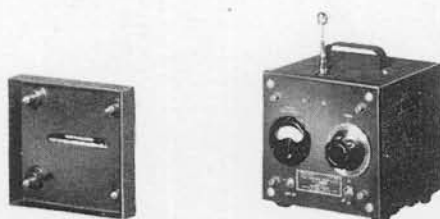
Signal Generator I-130-A



Cord CD-477



Chest CH-93-A



Field Strength Meter I-95-BM



Test Set I-139-A



Battery Box BX-33-A

TEST EQUIPMENT IE-19

TOTAL WEIGHT 100 LBS.

Component	Nomenclature	Size	Weight
Signal Generator	I-130-A	19" x 10" x 8"	28 Lbs.
Test Set	I-139-A	4" x 4" x 4"	2 Lbs.
Field Strength Meter	I-95-BM	9" x 8" x 8"	11 Lbs.
Chest	CH-93-A	11" x 20" x 23"	49 Lbs.
Cord	CD-477	10 feet long	1 Lb.
Battery Box	BX-33-A	10" x 9" x 9"	10 Lbs.

and includes special tool kit.

March 1945

Test Equipment IE-36 is a portable squadron test equipment designed to make field tests of Radio Sets SCR-522-A and SCR-542-A. It can also be used for Radio Set SCR-624 and Radar Set AN/CRC-1. This item is now in production for the purpose of issue, together with Test Set I-139, as a partial replacement for Test Equipment IE-19.

Particularly designed to fill the need for a small readily portable test unit which can be used at the point of installation, IE-36 provides a means for making troubleshooting tests and tuning adjustments on the above radio equipments. Although it is usually used with and contains mounting space in the chest for Meter I-139, this meter is used as a separate item.

Main application of IE-36 is in airplane squadrons where a check of SCR-522 installation and/or a change in channel frequencies can be made in the airplane quickly and without using large, heavy test equipment.

Control Unit BC-1303 is the major item. It provides a channel selection switch, carbon-magnetic microphone and headset jacks, a buzzer with on-off switch for use in tuning the receiver, a "Contactor on-off" switch, and a "Transmit-Receive-Remote" switch.

Phantom Antenna A-29 consists of 12 resistors,

each 820 ohms, and a pilot lamp, all connected in parallel on a coaxial fitting which plugs into Socket SO-153 or the radio set.

IE-36 provides a means for testing the following: Starting and stopping mechanisms of BC-625 and BC-624; functioning of the channel selection circuits; Receiver-Transmit-Remote switching function; contactor operation in the transmitter; relative signal to microphone and resultant input modulation in the transmitter; relative sensitivity of BC-624.

IE-36 has the following limitations: It will not give an indication of field strength produced by the transmitter; it will give only relative power output as indicated by the brightness of the lamp of Phantom Antenna A-29; it will give only a relative index of modulation, not the actual percentage.

No test equipment is required for maintenance. Army Supply Program requirements as of 30 November 1944 were 19,487 for the calendar year 1944, and 2,135 for 1945.

POWER INPUT	14 VOLTS D.C.
FREQUENCY	100-156 MC.
TYPE OF SIGNAL	BUZZER



Chest CH-234



Control Unit BC-1303



Test Set I-139-A



Phantom Antenna A-29



Lamp extractor



Cord CD-1169



Spanner Wrench



Cord CD-1170

TEST EQUIPMENT IE-36

TOTAL WEIGHT 10 LBS.

Component	Nomenclature	Size	Weight
Chest	CH-234	4" x 10" x 10"	5 Lbs.
Control Unit	BC-1303	3" x 8" x 4"	2 Lbs.
Phantom Antenna	A-29	length 3" x diam. 2"	*
Cord	CD-1169	length 16"	*
Cord	CD-1170	length 39"	*
Adjustable Spanner Wrench			
Lamp Extractor			

and includes maintenance kit and I-139.

*less than one pound.

March 1945

Frequency Meter Set SCR-211 is designed to measure or radiate any frequency between 125 kc. and 20 mc. It is a portable device used to adjust radio receivers and transmitters in the field.

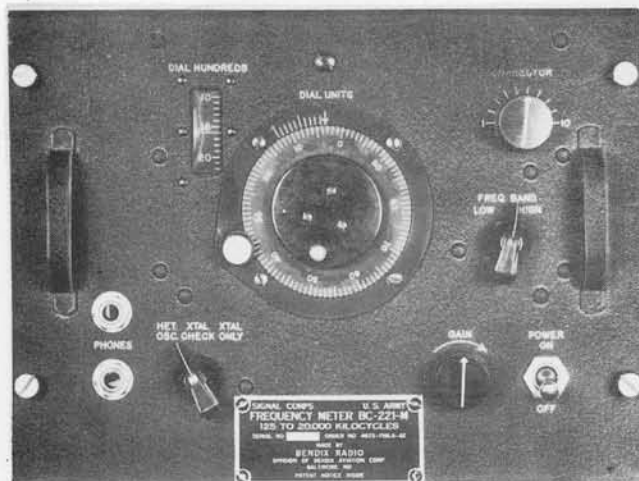
The instrument is completely enclosed in a black wrinkle-finished, aluminum-alloy cabinet. Mounted on the top surface of the cabinet are a carrying handle, the antenna binding post, and a latch. On the sides are mounted two small rings to which the carrying strap is ordinarily hooked.

The cabinet consists of three principal sections:

- (1) Lower half containing the batteries or power supply,
- (2) Upper half containing the frequency meter proper, and
- (3) Small compartment at the front holding the headset when it is not in use.

All power for the equipment is supplied by "A" Batteries BA-23 and "B" Batteries BA-2. They are mounted in a special tray in the lower compartment of the cabinet.

Army Supply Program requirements for all services, as of 15 May 1944, were 25,266 for the calendar year 1944 and 16,748 for 1945



Frequency Meter BC-221-M

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
1	6K8	2	6SJ7

POWER INPUT	POWER SUPPLIED BY BATTERIES
FREQUENCY	125-20,000 KC
CRYSTALS	DC-9-F (2 ea.)



Frequency Meter BC-221-J

Headset P-18
or P-20



Bag BG-81-J

FREQUENCY METER SET SCR-211

TOTAL WEIGHT 39 LBS.

Component	Nomenclature	Size	Weight
Frequency Meter	BC-221	13" x 10" x 9 1/2"	17 Lbs.
Crystal Unit	DC-9-F		
Calibration Book	MC-177		
Bag	BG-81-A		
Battery	BA-2(12 ea., 6 in use, 6 spare)		
Battery	BA-23(8 ea., 4 in use, 4 spare)		
Headset	P-18 or P-20		

Frequency Meter TS-164/AR is a heterodyne frequency meter adaptable for operation in the range from 125 to 20,000 kc. with an error of .01 percent. It includes Frequency Meter BC-221, except the B or Q model, a heterodyne oscillator, a high gain detector and an audio frequency amplifier. Power is obtained from the aircraft 28 volt d.c. supply and from the high voltage dynamotor of Radio Receiver BC-348 in the aircraft.

TS-164/AR is designed for permanent installation in the aircraft, in association with Radio Receiver BC-348.

This equipment is similar to Frequency Meter Set SCR-211 except that it makes provision for operation without dry batteries and is contained in a different case, Case CY-182/AR.

TS-164/AR is used for calibration of medium frequency communication equipment. Principal advantages over the standard Frequency Meter Set SCR-211 are: Elimination of dry batteries; reduction in weight of approximately 20 pounds.

No test equipment is required for maintenance. This equipment had not been placed on the Army Supply Program as of 30 November 1944.

POWER INPUT	200-250 VOLTS FROM BC-348 28 VOLTS DC FROM AIRCRAFT SYSTEM
FREQUENCY	125-20,000 KC
TYPE OF SIGNAL	CW
ACCURACY	.01 PERCENT

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
2	6SJ7	1	6K8



Frequency Meter TS-164/AR

FREQUENCY METER TS-164/AR

TOTAL WEIGHT 19 LBS

Component	Nomenclature	Size	Weight
Frequency Meter	BC-221-()	10" x 9" x 8"	8 Lbs.
Case	CY-182/AR	8" x 12" x 10"	6 Lbs.
Cord	CX-243/AR	10 feet long	1 Lb.
Mounting	MT-269/AR	11" x 11"	2 Lbs.